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Between Specimen and Spectacle  
Culturing Dinosaurs and Performing Worlds in Museums and Palaeobiology

by

Brian Edward Noble



A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of  
the requirements for the degree of  
Doctor of Philosophy

Department of Anthropology

Edmonton, Alberta

Spring, 2000





**University of Alberta**

**Faculty of Graduate Studies and Research**

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *Between Specimen and Spectacle: Culturing Dinosaurs and Performing Worlds in Museums and Palaeobiology* submitted by Brian E. Noble in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Anthropology.





# Abstract

This dissertation examines how dinosaurs and the Mesozoic act as cultured forms of nature in contemporary society. Blending approaches from the anthropologies of science, media, and museums, the study details cases of how dinosaurs emerge as *materialized phantasies* in the *specimen-spectacle complex*. It contours how dinosaurs reshape that complex, affect knowledges and identities, and alter what comes to count as nature.

Part I: Mesozoic Performativity. The first part of the dissertation is a critical study of the nested practices of museums, media, and palaeobiology in configuring the Mesozoic. The Mesozoic has become a very material “performative” site for the trade between fictional and scientific otherworldmaking, infused by physical, technical, political, social, masculinist, and racialized interests. The dissertation tracks a particular history of this trade, starting with Arthur Conan Doyle’s novel *The Lost World* and the practices of the American Museum of Natural History in New York in the early 20th century. Out of this history, came a fixation on large meat-eating dinosaurs, most notably *Tyrannosaurus rex*. A discussion of the trade in Mesozoic scenario-making in dinosaur palaeobiology and popular dinosaur monster movie-making leads to cases in paleontology associated with dinosaur systematics.

Part II: Theatre of the Articulate Dinosaur. This ethnographic case study of Toronto’s Royal Ontario Museum from 1997 to 1999 considers a particular exhibition, “The Maiasaur Project”. The exhibition centres around ROM #44770, an exceptional specimen of the “friendly” plant-eating dinosaur *Maiasaura peeblesorum*, the “good mother lizard.” The study closely examines both the multi-actor *network* of production, and the resulting *nexus* which museum visitors came to engage—an exhibition which included interactive computer-animated reconstructions, a working palaeontological preparation laboratory, videos, fossil showcases, and a gleaming pewter scale-model of the dinosaur. The account tracks *articulations* and *ruptures* in public and technical engagements with *Maiasaura*, detailing how the exhibit diverts dinosaur fetishism along lines of gender and “family relations.”

Concluding comments point to how dinosaurian nature, museums, and palaeobiology are increasingly subordinated to the performative actions of marketing and entertainment, the logics of those actions suffusing the specimen-spectacle complex in a very distributed way.





# Acknowledgments

My warmest thanks go to the remarkable people whose actions have made the researching and writing of this dissertation a possibility for me.

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Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.



## Can there really be an “Anthropology of Dinosaurs”?

BN: *Why do you suppose people are so fixated on dinosaurs as something to support and talk about in natural science and in museums?*

Martin: *It's just like - they are not around anymore, and what happened to them, they were so huge. They are just so - like nothing we have ever seen. That's why.*

Amy: *I kind of think, the more you learn about them, and where they came from and what they lived like, it tells the story about us.*

Martin: *Yeah, the story about us.*

Amy: *Where we came from. It is our history too.*

—From interview with 21 year old Amy, and 21 year old Martin, visitors to the Maiasaur Project Exhibition at the Royal Ontario Museum, 1998.<sup>2</sup>

The question which the title of this introduction poses is, of course, rhetorical. This dissertation is an anthropological study of dinosaurs: of dinosaurs as science, as public culture, and most importantly of the relation between the two and the very real effects that those relations produce in contemporary life. I examine how dinosaurs and the Mesozoic act as cultured forms of nature in contemporary society. Blending approaches from the anthropologies of science, media, and museums, the study details cases of how dinosaurs emerge as *materialized phantasies* in what I refer to as the *specimen-spectacle complex*. In turn, it contours how dinosaurs reshape that complex, affect knowledges and identities of people, and alter what comes to count as nature. There are two sections of the dissertation

---

<sup>1</sup> Figure 1, Illustration on Dissertation Title Page (see preceding page): Riou's keyhole rendering of Jules Verne's "Centre de la Terre" with prehistoric beasts (1877). Source: Verne 1877, title page.

<sup>2</sup> Interview text from ROM, July 26, 1998.





which consider the topic from slightly different, though intersecting, perspectives—the first is primarily historical, the second is an ethnographic case study.

This introduction briefly lays out the guiding issues and practices informing my research project, and an overview of the content of the dissertation. For each of the two sections, I have also prepared introductory texts (i.e. Chapters 2 and 7), which include further details of the scholarly approaches and questions pursued. My first task in this introduction is to situate this study in anthropology, or rather, in two anthropologies.

## Two Anthropologies

*Although the impetus for contextualizing what one studies as deeply as possible has an old and venerable tradition in anthropology, the contexts in which this fieldwork on science is being done are not like we imagined the field sites of our forebears to be...<sup>3</sup>*  
—E. Martin, 1997

*Were Western science to be reassessed as a cultural practice, in the narrowest and widest senses, it arguably stands to gain, in both resources and on its own terms, as an effective, predictive, useful and interested account of its objects.<sup>4</sup>*  
—S. Franklin, 1995a

I note that two anthropologies inform and constitute this project: one that borrows from disciplinary traditions, a second that breaks from them. There are some very good reasons for doing this. Older anthropologies (e.g. Malinowski, Boas, Evans-Pritchard) worked the exotic travel mode of ethnography very well, looking for local ‘culture’, without suggesting the implication, privilege, and domination in knowledge/power that was entailed in practicing this “natural history” mode of fieldwork. Nonetheless, these older anthropologies developed a remarkable body of theory and analysis—which may be borrowed upon, if critically and cautiously.

---

<sup>3</sup> Martin 1997:145-6.

<sup>4</sup> Franklin 1995a:179-80.



On the other hand, newer anthropologies stayed home to study the key institutions of the “homeworld” (including science, markets, legal systems, work places)—or if their students travelled, they attempted far more to note how “home” tended to follow them about, inside their baggage, as it were. They borrowed as much or more from outside anthropology: from sociology, cultural studies, political science, media studies, etc.. One result of the newer approaches was the decentering of the “field” itself as a privileged “site” of culture. Akhil Gupta and James Ferguson pointed out that this decentering helped to reformulate the locus for anthropology:

*The idea that anthropology’s distinctive trademark might not be found in its commitment to “the local” but in its attentiveness to epistemological and political issues of location, surely takes us far from the classical history model of fieldwork as “the detailed study of a limited area”.<sup>5</sup>*

One of the problems of studying dinosaurs as science and culture is that the consequences of that relation are to be found everywhere in material form. But even the older anthropologies studied technology and material cultures as the activities and products of societies.

Palaeontology is also technological, has instruments, and produces artifacts—from diagrams to laboratories to systematically ordered collections. Dinosaurs have come to be known through museums and media, they have been composed into art, films, books, educational curricula, exhibitions, fictional texts, advertising, toys—all very human matter. And of course, neither these material cultures nor the science is ahistorical—they each have shifting cultural histories. To study that very distributed matter of dinosaur science and culture—across time and space—the newer anthropology has to be highly mobile, following the action wherever it leads, unpacking its baggage wherever it stops.

The second contrast between older and newer anthropologies is that the older approaches fell in line with the dividing up of scientism and humanism. Scientific and humanistic anthropologies opposed each other across a modern divide between nature and non-human

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<sup>5</sup> Gupta, A. and J. Ferguson 1997:39.





things on one side, and culture and humans on the other.<sup>6</sup> The divide was felt across the academy, beyond anthropology, as expressed in C.P. Snow's consideration of the "Two Cultures".<sup>7</sup> It reared up again in the form of the 1990s "Science Wars". In effect, the older anthropology, in operating so resolutely in relation to the nature/culture opposition, presented a critical point of departure for the newer anthropology. In the course of things, the very oppositional categories which had for so long organized the older anthropological project came into question—most notably from feminist anthropologists and from anthropologists of science who noticed that things like "sex" and "nature" were highly cultured matters, to the point that many of the distinctions between nature and culture, or sex and gender, scientism and humanism, came undone.

A singular, universal "Nature" came to be understood as a contingent effect of particular, if complex, cultural histories which implied a working of humans and non-human things. Now, the newer anthropologies take the nature/culture oppositionality, itself, as but one more dimension of practice to be considered. This may very well be why people like science studies scholars Donna Haraway and Bruno Latour (two notoriously anthropological non-anthropologists) have often claimed anthropology as a chosen disciplinary location: it had always dealt with the relations of nature *and* culture. The extension from an oppositional nature v. culture, to a blended nature/culture was a logical one. Marilyn Strathern summed up the current situation succinctly, "The old double model for the production of culture—society improves nature, society reflects nature—no longer works...". She noted further, how important the shift from the older to the newer anthropology was becoming, and how clear the work of the newer anthropology was, given, "...the potential consequences of the present ecological necessity—namely that we make explicit the participation of nature and culture in each other."<sup>8</sup>

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<sup>6</sup> cf. Ortner 1984.

<sup>7</sup> Snow 1993 [1959].

<sup>8</sup> Strathern 1992:177, 184.



Harkening to the older ethnographic tradition of anthropology, Latour has suggested that were it not for anthropology, we would be lost in the hopeless dilemma of naturalizing and culturalizing continually.<sup>9</sup> Here, Latour is referring to the ways in which anthropologists conducting ethnography have moved throughout their field localities in a ‘heterogeneous’ manner, gathering oral texts, material documents, assembling material objects, producing kinship charts, photographing rituals, studying exchange relations, considering embodiment, entering into dialogues with subjects, watching how objects and environments affect society, and vice versa. As such, he adds, anthropology deals “calmly and straightforwardly with the seamless fabric of what I shall call ‘nature-culture’, since it is a bit more and a bit less than a culture”. In a limited sense, Latour’s is a rather Boasian frame of ethnographic practice, recognizing how in the field, “even the most rationalist ethnographer is perfectly capable of bringing together in a single monograph the myths, ethnosciences, genealogies, political forms, techniques, religions, epics and rites of the people she is studying.” And finally, he notes that in such anthropological work “you will not find a single trait that is not simultaneously real, social, and narrated.”<sup>10</sup>

Just as ethnography can sample the heterogeneity of worldly actions, the newer anthropologies also attempt to reveal the political, personal, and intellectual partialities of the ethnographer (her/his reflexive position), a point sometimes missed by some contemporary science studies scholars.<sup>11</sup> While in this ethnographic account, I borrow some language, terms, findings and concepts from certain sorts of science studies (especially the Anthropology of Science and Techniques<sup>12</sup>) I attempt to do so without allowing those constraining concepts to limit the mobility and immediacy of accounting which an ethnographic perspective offers. Sarah Franklin has commented on the special position of ethnographically informed anthropological practices in this regard:

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<sup>9</sup> Latour 1993:7, 100-106.

<sup>10</sup> Latour 1993:7.

<sup>11</sup> See commentary in Traweek 1992.

<sup>12</sup> See various bibliographic references under Callon, Latour, Law, Star.

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*Anthropology is uniquely positioned to attest to the value of a multiperspectival science, which situates itself as partial in the representation of its objects. This position can be envisioned as the strong objectivity of some, as the more open-ended hermeneutics espoused by others, or by both and other voices in the maintenance of an anthropological tradition characterized by ongoing internal dispute.*<sup>13</sup>

Anthropology—like science and nature—is anything but ready-made, even though it is sometimes presented that way. William Dawe, the dinosaur collector in Robert Kroetsch’s novel *Badlands* remarked how in natural historical exploring, “There is nothing that does not leave its effect...we study the accumulated remains”.<sup>14</sup> The two anthropologies I have been discussing have combined together, accumulating to outline the larger field of practice constituting contemporary anthropology today. One anthropology tends to stay neatly within its historical bounds; the other exceeds them from time to time moving to include disciplinary approaches from elsewhere. The anthropology of science is an approach which has critically, fruitfully conjoined these two anthropologies.<sup>15</sup>

It is from this juncture of these two anthropologies that I turn my attention to this study of dinosaurs as science, nature, and culture. In the spirit of the newer anthropology, I consider dinosaurs in both historically and culturally distributed senses, and as forms of life which have gained their cultural force at the intersection of science and public culture.

To date, the only major published scholarly work on dinosaurs as cultural figures is that written by American literary scholar W.J.T. Mitchell. Mitchell’s wide-ranging account, written predominantly for populist consumption, considered dinosaurs as “cultural icons”, or the “totem animal of modernity” which in his words “has an uncanny capacity for working both symptomatically and diagnostically...[expressing] the political unconscious of each era of modern life...”.<sup>16</sup> While an evocative account, and one that presents many of the

---

<sup>13</sup> Franklin, S. 1995a:179.

<sup>14</sup> Kroetsch 1975:118.

<sup>15</sup> Here I am referring to the historically grounded anthropological science studies work of individuals such as Marilyn Strathern, Sarah Franklin, Stefan Helmreich, Joe Dumit, Emily Martin, David Hess, Sharon Traweek.

<sup>16</sup> Mitchell 1998:261.



manifestations of dinosaurs, Mitchell paid so much attention to iconic effects as to forfeit the possibility of contouring *how* dinosaurs operate to actually configure nature, and how the iconic effects he describes came to be enacted not just in popular culture, but in the science of palaeontology as well. It has been to contribute to these latter tasks that this partial anthropology of dinosaurs is dedicated.<sup>17</sup>

Before outlining the content of the two sections of the dissertation—entitled *Mesozoic Performativity* and *Theatre of the Articulate Dinosaur*—I would like first to provide some background on the topic, and how I have come to formulate the general questions I ask in each of the sections.

### *Dinosaurs and Monsters, Specimens and Spectacles*

This current research extends on a longer project on the culturing of nature through the relations of dinosaurs, monstrosity, and the geographical and historical imagination.<sup>18</sup> That research began with a consideration of some propositions from science historian Martin Rudwick on the notion of “scenes from deep time”—a genre of pictorial rendering of ancient life worlds produced under the guidance of natural theologians, natural historians, geologists and palaeontologists, but available as well for public circulation.<sup>19</sup>

In that study I tracked the western history of monsters (and “monstrous races”) and the manner in which they have come to be narrated, depicted and made intelligible by being bounded in remote locales in time and space. In Medieval times, monstrous races were thought variously to live in Egypt, Ethiopia, India—a decidedly orientalist tradition of

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<sup>17</sup> One dinosaur palaeontologist, Phillip Currie suggested to me that this was the failing of Mitchell’s book, noting, palaeontologists would probably forget about it quickly. A second dinosaur palaeontologist, Andreas Henson, asked: “Okay, so we know that dinosaurs are cultural icons. My question is how did they actually get that way?”

<sup>18</sup> This work is in the process of publication with the University of Michigan, Noble, B. [in press]. Several conference papers relating to this have been presented: Noble 1994, 1996, 1997.

<sup>19</sup> Rudwick 1992.





othering.<sup>20</sup> Through visualizing stories and street-cryer's accounts, monsters became a matter of common street or village *spectacle*. Paralleling but diverging some from this history, in seventeenth century Enlightenment natural philosophy monsters and anomalous things also became objects of wonders, *specimens* for philosophical investigation and ordering as in the case of Baconian "teratology".<sup>21</sup> As geology and palaeontology came into being in the 18th and 19th centuries, one of the most useful means of disseminating the sense of ancient life was through "scenes from deep time" to use Martin Rudwick's terms. Dinosaurs and their ancient kin had the character of monsters—being anomalous, hybrids, giants—and they were also amenable both to scientific investigation and public wondering. Effectively, they could be taken as specimens and the object of scientific investigation, or as spectacles and the object of public marvelling.<sup>22</sup>

Moving between these two domains, of fossil specimens for science and spectacular visions for society, were the pictorial visions of which Rudwick wrote. In 1854, with the otherwise bizarre, new fossil forms of ancient terrestrial creatures having been ordered through comparative study of fossil specimens, the pictorialization of dinosaurian time-space was recomposed in a materialized, three-dimensional scene—an artificial saurian island display in Crystal Palace Park. [Fig. 2, page following]<sup>23</sup> The south London pleasure garden and architectural space displayed a progressive natural and human history in an overall project of civil improvement, indeed, becoming a model for the newly emerging public natural history museums of the day. Authorized by Sir Richard Owen, dean of British natural history, the work of transposing the scientific work of specimen study into a visible naturalistic spectacle had been achieved. Moreover, the display of dinosaurian nature was,

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<sup>20</sup> cf. Said 1979.

<sup>21</sup> See various discussions of monstrous geographies and monstrous races in Wittkower, Parks and Daston, Ceard, Braidotti, Warner.

<sup>22</sup> See Pomian 1990.

<sup>23</sup> Figure 2, Benjamin Waterhouse Hawkins's rendering of Secondary Island, Ancient Inhabitants, Crystal Palace Park, London (1854). Source *Guide to the Crystal Palace and its Park and Gardens*, Phillips 1859:169.



**Figure 2** (p. 8a)  
Benjamin Waterhouse Hawkins's Rendering of Secondary Island,  
Ancient Inhabitants, Crystal Palace Park, London (1854)  
Source: Phillips 1859:169.



The Secondary Island.





from the outset, as much a social practice as it was a scientific one. Dinosaurs had become a part of public, human history as well as natural history.

At the same moment, the great public museums of the world were emerging. As cultural theorist Tony Bennett noted, this combination of objects of study in coordination with spectacles of display could now be coordinated in a larger project of public improvement and civil disciplining through the public museum:

*...the museum might be regarded as a machinery for producing 'progressive subjects'. Its routines served to induct the visitor into an improving relationship to the self. ...the space of the museum was also an emulative one; it was envisaged as a place in which the working classes would acquire more civilized habits by imitating their betters... In these respects, the museum provided its visitors with a set of resources through which they might actively insert themselves within a particular vision of history by fashioning themselves to contribute to its development.<sup>24</sup>*

It is the *vision* of history, or more pointedly, *each of the envisioned time-spaces from history* which I am interested in, for those visions stand as elements of what counted as “nature”—the bounded picture or time/space was what connected the scientific and the public in whatever class, or self-improving project was deemed appropriate. Following Pomian, Bennett also remarked on what some have referred to as the “ocularcentric” dimensions of natural historical collections and displays since the 18th century:

*What can be seen on display is viewed as valuable and meaningful because of the access it offers to a realm of significance which cannot itself be seen. The visible is significant not*

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<sup>24</sup> Bennett 1995:46-7. Bennett's formulations about training civility through a progressive telos of history are also informed by Fabian, J. 1990. Bennett notes (1995:39): “The most crucial development concerned the extensions of time produced by discoveries in the fields of geology and palaeontology, especially in the 1830s and 1840s, and the reorientations of anthropology which this production of a deep historical time prompted in allowing for the historicization of other peoples as ‘primitive’. While important differences remained between competing schools of evolutionary thought throughout the nineteenth century, the predominating tendency was one in which the different times of geology, biology, anthropology and history were connected to one another so as to form a universal time. Such a temporality links together the stories of the earth's formation, of the development of life on earth, of the evolution of human life out of animal life and its development from ‘primitive’ to civilized’ forms, into a single narrative which posits modern Man (white, male, and middle class, as Catherine Hall would put it) as the outcome and, in some cases, *telos* of these processes.”





*for its own sake but because it affords a glimpse of something beyond itself: the order of nature, say, in the case of eighteenth-century natural history collections.*<sup>25</sup>

Natural historians, then, had a special purchase on hidden ordering accessible through vision, and museums became the institutional locale for gaining that access and regulating it socially.

Bennett referred to the wider array of commonly available public spectacles, arcades, department stores, museums, country fairs, pleasure gardens and shows in the 19th century with the phrase “the exhibitionary complex”.<sup>26</sup> Within the broader terms of the “exhibitionary complex”, I have attended to the more specific relation of specimens and spectacles—the “specimen-spectacle complex”—in my discussion. Dinosaurs were an entity which was constituted both as specimen, and in turn, reconstitutable in public form as spectacle. The ordering and regulating of that form, once more, was in part achieved by incorporating it into a bounded time/space. By incorporating dinosaurs and other ancient creatures into a stabilized natural order and natural world picture, a time and a space, they were made to some extent, more normal. The project of incorporating more and more creatures through systematic naturalistic study and consequent pictorialization and worldmaking has continued. As I discuss in the first section of this dissertation, two prominent (and indeed, intergrading) time/spaces for such bounding are, from geology and palaeontology, the “Mesozoic era”, and from literature and natural historical exploration “the lost world”.

Since the latter nineteenth century, with dinosaurs well-entailed by palaeontological description, they have become, along one axis, normalized matters of natural fact known from the ongoing studying of specimens. At the same time they are still widely used as spectacles, continuing to borrow on their figurative effect as monsters, giants, and “terrifying” creatures—witness a long Hollywood tradition of monster movies. The

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<sup>25</sup> Bennett 1995:35, After Pomian 1990.

<sup>26</sup> Bennett 1995:59-88, and cf. Altick 1978.



dinosaur in spectacle form is mobilized across an amazing array of sites and media from popular books and toys, to cartoons, kitsch and school programs. Yet, still central, is the dinosaur spectacle in museums.

To this day, it is in museums that the dinosaur specimen-spectacle complex is most clearly expressed and enacted. A central thesis in this dissertation, then, is that it is the bounded time/spaces which continue to connect the action of science with the action of public culture, effecting a rich trading and fusing of interests in the mix. Furthermore, today, dinosaurs in their authorized museum locales have significantly been stabilized as part of nature, no longer something outside the natural order. It is in relation to the normalizing of dinosaurs and their bounded time/space, that I resume this ongoing anthropology of dinosaurs. As such, the first of the two sections of the dissertation resumes in tracing the rich history of the dinosaur specimen-spectacle relation starting in the early twentieth century with the palaeontological activities of the American Museum of Natural History and Arthur Conan Doyle's *Lost World* novel.

The very issue of how public and scientific practices intersect to effect what counts as nature—in normative or disruptive forms— is a longstanding matter in contemporary science studies, most notably addressed in the work of Donna Haraway and Bruno Latour, both of whom I draw upon extensively in this dissertation.<sup>27</sup> As will become increasingly clear in

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<sup>27</sup> In Haraway's lexicon, the time/space bounded world locale of which I write could be termed a "zone of implosion", a site where intensive natural/social trading takes place, and where certain cultured forms of life come into being. The other current in science studies is that associated with the traceable sociotechnical networks, especially as discussed by Bruno Latour. Both are interested in "hybrids" which are figures that have both human and non-human characteristics, and the ones they attend to most are those that "do the most work" to produce the stability of society/nature, or to disrupt that stability. What distinguishes their scholarship most, is that Haraway considers the political potency of that which is produced far moreso than Latour. Her interest attends to how figures which emerge at the zones of implosion, effectively disrupt sociotechnical life in the very instant that they draw upon and are made up of its conventions and its tensions. My project, then, is to try and offer some provisional accounts about how these two impulses might come into coordination. That is, how can the gains of actor networks be retained, while choosing at the same time to acknowledge the political effects of the outcomes of networks in action? For those readers current in contemporary science studies, the work of Haraway and Latour will be familiar. Both are concerned with natural/cultural outcomes, that is how human and non-human agencies come into play to produce what counts as nature, what counts as society. Both, as well, are concerned with seeing how those collectives of humans and non-humans (which includes their technologies) are always mixed and remixed to produce "hybrids". Latour's hybrids tend to appear at the interstices of interactions between humans and non-





reading these chapters, an important move that I make relates to the readmission of *phantasy* and the *imaginary* into individual or collective fashioning of materialized forms of nature such as the life world of dinosaurs.<sup>28</sup> The principal reason for advancing this possibly contentious point is that dinosaurs themselves, while informed by such physical matter as fossils, have been materialized so excessively by imaginary engagements—a point I return to continually in these discussions.

The ethnographic study detailed in Part II works through multiple tracks. The central one is the tracking of a fossil dinosaur skeleton from Montana after it was obtained by the Royal Ontario Museum (ROM) for research, collections, and, primarily, display purposes. It also tracks the counter engagements of the dinosaur palaeontologist and ROM curator who oversaw the acquisition of the specimen, and curated its exhibition. One of the important effects of museums through exhibitions and other actions, is that they do connect the action of scientists with the action of the public—and hence of what counts as nature *and* society. They are “zones of contact” between the networks of science and society more widely considered. Other such zones or crossover locales/productions are popular science films, semi-popular books by scientists, public lectures, etc. As I point out, it is in these locales that scientists often relax their technical performativity enough to allow the ever-present culturing of their practices to be revealed. These trading events reveal tremendous amounts about how natural-cultural production occurs, how bounds between the two are erected, and

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humans—they are translation devices. Haraway’s hybrids—most notably, her “cyborgs”, “OncoMouse™”—are emergent figures at the zone of implosion of multiplicities of complex sociotechnical action. The study I am attending to, then, attempts to set up the relations between Latour’s translational hybrids, and Haraway’s implosion hybrids. Dinosaurs and the time-space geography of the Mesozoic provide an excellent case for considering such distributed and concentrated questions related to technoscientific hybridity.

<sup>28</sup> I commonly use “imaginary” in its noun form in the texts, to signal the sharable, transferable character of imagining, as in the sense of a “cultural imaginary”, or a “political imaginary”. In this sense, the imaginary, while extremely plastic, is an immanent ‘thing’, in that, with the aid of material things, language, and people, it may be exchanged, and in due course hardened into things. There is then, a sliding between imagining and material outcomes. My point is i) people do imagine, reflect, phantasize and ii) they also then act to translate such imagining into things or with other people. The entire fabric then, may be thought of as an “imaginary”. A very important dimension of generative human agency (especially) is lost if imagining is left out of the analysis of, for instance, actor networks. Latour, in particular wishes to remove such action from his calculations, but the case of dinosaurs very much troubles his arguments (cf. Latour 1999:146ff).

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why that work has come to be repeated so often. It is in these moments that the bounded time/space world works as a nexus conjoining the culture of science, with science as culture<sup>29</sup>, the meeting ground for the specimen and spectacle.

Given this frame, in general terms, my discussions are guided by four principal questions:

- 1) what takes place when fossils, as specimens and nonhuman fragments of scientific ‘nature’, are mobilized and transformed into spectacle in the human lives of ‘society’?;
- 2) how do these formal entities—specimen and spectacle, science and society—trade back and forth to co-produce, reproduce, and reconfigure each other?;
- 3) how are forms of life and their natures stabilized or reconfigured in the process?; and,
- 4) what are the political consequences?

The cases I track, then, aim to provide a fuller understanding of how figurative, bounded spaces of dinosaur life materialize, how they are used to divide the actions of scientific practice from public cultural practices, and simultaneously, how they become a most powerful tool for cultural trading and translation between the two.

## Two Complementary Accounts

The overall dissertation tracks several cases of the complex ways in which dinosaurs and the Mesozoic are performed as materialized, cultured forms of nature in contemporary society. The study suggests how the bounded world of dinosaurs is gradually transformed as a natural/cultural *nexus* through a complex *network* of actions. As the chapters unfold, I will be describing how I use these and other terms which, to some readers, may be unfamiliar.

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<sup>29</sup> Franklin (1995a), used this phrasing in the title of her review for the *Annual Review of Anthropology*.



The two sections of the dissertation are complementary, with the first setting out both historical conditions and active terms which more fully animate the ethnographic accounts presented in the second part.

### Part I: Mesozoic Performativity

The first part of the dissertation is a critical study of the nested practices of museums, literature, media, and palaeobiology in configuring the Mesozoic. The Mesozoic has become a very material “performative” site for the trade between fictional and scientific otherworldmaking, infused by physical, technical, political, social, masculinist, and racialized interests. As noted already, this section is historical and begins with cases from the early twentieth century in Britain and America, later connecting those historically to the contemporary moment of dinosaur palaeontology and public mediation. The argument, once more, forms around the proposition that the bounded world of dinosaurs is that which effects a connection and trade between palaeontological practices and public cultural practices.

The dissertation tracks a particular history of this trade, starting with Arthur Conan Doyle’s novel *The Lost World* and the practices of the American Museum of Natural History in New York City in the early twentieth century. Out of this history, came a special fixation on large meat-eating dinosaurs, most notably *Tyrannosaurus rex*, which Henry Fairfield Osborn referred to as “the most destructive life engine” ever. This follows directly into the trade in Mesozoic scenario-making between dinosaur palaeobiology and popular dinosaur monster movie-making, and leads eventually to cases in recent palaeontological practice associated with dinosaur systematics. The discussion considers how a particular configuration of the Mesozoic/Lost World emerged, and how it then was drawn upon as a *phantasmatic* source of ongoing cultural reproduction both in palaeontological and public mediation practices.





## Part II: Theatre of the Articulate Dinosaur

This ethnographic study undertaken at Toronto's Royal Ontario Museum from 1997 to 1999 considers the way that performative dimensions of the Mesozoic are reconfigured through a particular exhibition, "The Maiasaur Project: Life and Times of a Dinosaur." The exhibition centres around ROM #44770, an exceptional specimen of the "friendly" plant-eating dinosaur *Maiasaura peeblesorum*, also known as the "good mother lizard." Considering the workings of the specimen-spectacle complex in action, the study closely examines both the multi-actor network of production, and the resulting *nexus* which museum visitors came to engage—an exhibition which included interactive computer-animated reconstructions, a working palaeontological preparation laboratory, videos, fossil showcases, and a gleaming pewter scale-model of the dinosaur. The account tracks *articulations* and *ruptures* in public and technical engagements with *Maiasaura*, detailing in particular how the exhibit diverts dinosaur fetishism along lines of gendered and "family relations". In the course of the study, several observations are made about how the bounded world is altered by the actions of this network.

Concluding comments point to how dinosaurian nature, museums, and palaeobiology are increasingly subordinated to the performative actions of marketing and entertainment, with the logics of those actions suffusing the specimen-spectacle complex in a very distributed way. Scientists and others in the collective actions associated with the technical/public materialization of the Mesozoic play a key role in redistributing the logics, and in reconfiguring the dinosaurian forms of life which it engenders.

### Some Notes on Reading and Writing: The Languages of Studying Science

Scholarly practices which critically address "science in the making" or "nature in the making" are sometimes referred to as 'post-modern' and, as the much exaggerated and diffident views of "Science Wars" figures Gross and Leavitt have exemplified, that term



applied to practices is often meant as a curse or a blight.<sup>30</sup> Sarah Franklin, however, puts the matter back into sober perspective with her comment: "...the postmodern turn does not require abandoning belief in progress, nature or scientific authority, it merely requires the acquisition of an additional layer of doubt concerning their effectivity."<sup>31</sup> That sort of doubt, it should be pointed out, has been a productive dimension of scientific practices historically, but what is different is that science studies scholars, even as participant observers, often speak from a position alongside the scientific practitioners, adopting languages that may differ in the process. As a consequence, some of the critiques of the practices of science studies have been leveled at the languages which science studies scholars have used.

Franklin also suggests:

*The steady production of recent scholarly reassessment of the status of the "natural" indicates, in the way of a cultural fact in itself, that its apparent contingency and vulnerability comprise a consequential shift in both knowledge of nature and the nature of knowledge...Such shifts appear to command a great deal more attention outside of the scientific community than they do within it. Yet the gap this seems to suggest may be the consequence of defensiveness within the scientific community at, in their view, having become like laboratory mice subjected to scrutiny from above.<sup>32</sup>*

Franklin goes on to point out that "One of the most important concerns facing anthropologists of science is how to enable their work to speak to the broadest audience of scientists, social scientists, and other scholars. It remains unclear what language is needed for this to occur."

One of the most demanding aspects of this dissertation project has been writing. When taking on a matter which reaches into scientific practices, museums, popular movie making, literary fiction, everyday experience, anthropology, science studies, history, gender studies, sociology, cultural studies, etc. one is left trying to sort out "who" they are writing for, that is, who the audience is. Can it really be written for people occupying each and every one of

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<sup>30</sup> Gross and Levitt 1994.

<sup>31</sup> Franklin 1997a:213.

<sup>32</sup> Franklin 1995a:178.





these areas of practice and daily life? Choosing a ‘single’ audience for this dissertation would be just as problematic. So I have tried to write with four key audiences in mind: anthropologists, science studies specialists, museums specialists, and palaeontologists.

At the same time, however, I have attempted to use some languages which are an attempt to describe complex concepts and practices for which no particular lexicon has been developed. My intention in developing this working lexicon has been to provide some terms for interdisciplinary sharing, made available to others studying science as a practice, public cultures of science, sociotechnical networks, critical museum and media studies, as well as to scientists themselves.

I should also point out that in many instances, the languages and terms used are not entirely novel, often having been borrowed from the wide disciplinary gamut informing this research. Science studies and cultural studies lexicons, in particular, are currently being fashioned and refashioned. For instance, from J.L. Austin and Judith Butler I adapt the terms of “performativity”, “phantasy”, and “materiality”; from Donna Haraway, “zones of implosion”; from Latour, “heterogeneous networks”, “immutable mobiles”, “factishes”; from Emily Martin (and Gilles Deleuze), “rhizomes”; from Joan Fujimura, “standardized packages”; from Susan Leigh Star, “boundary objects”. My expectation is that, if and when others borrow the terms I have adapted or coined, that they will be able to work them further into their own research. In every sense, I am in dialogue with at least all the individuals I have mentioned, and with those who will read or make use of what I offer here.

The revising of vocabularies has its risks, insofar, as it adds another level of complexity to the already complex issue of multiple audiences. These risks—arguably unavoidable—and the consequent criticisms are ones I accept willingly in the interest of contributing to new, alternative approaches to anthropological scholarship. The demands on reading may well be greater as a consequence. That said, I have made considerable effort in the drafting and redrafting of these texts to use as much “plain” writing as possible. However, there are



passages where I am intently working to develop certain terms, and certain ways of expressing matters which are necessarily complicated. In many instances, definitions or glosses are provided, either in footnotes or in the body of the text. Occasionally, I use long footnotes to detail matters that may be more salient to a particular audience. I ask the reader to bear with the slower reading that may come with these points, in order to get a sense of the complex matters, multiple meanings, or the uncertainties to which I am gesturing. As the texts proceed, and as I reintroduce these terms and situations, the points should become increasingly suggestive.

As a general guide to readers, the texts unravel in the manner of a conversation that moves from chapter to chapter. One conversant is constituted by the cases from palaeontology, museums, media, etc., the other by critical points from anthropological and contemporary science studies. As such, the cases from palaeontology and public culture on dinosaurs and the Mesozoic gradually modify the science studies positions. Likewise, science studies views gradually modify what may be said about palaeontology and public culture. The wish then, in promoting this moving back and forth between the cases and the critical commentaries, is for the reader to come to an increasingly fuller sense of the propositions being developed, and of the languages used to index and describe them. Ultimately, it is my sincere hope that readers will find that some of the terms and propositions may indeed be applicable in their own work.

Finally, as dinosaurs are figures which are highly circulated in popular culture, I am also relying on the imaginative capacity of readers to make conceptual and practical connections with what is presented. In the closing chapter of a recent volume, anthropologist Henrietta Moore made a comment, à propos this discussion and the texts that follow:

*Intellectual models depend for their impetus on imaginative possibilities they themselves cannot provide. What masquerades as the academic is very often the popular in disguise, and we would do well to remember that this sophisticated veiling mechanism is merely*



*one of the more commonplace methods for covering over what we do not wish to reveal.*<sup>33</sup>

My intention is to aid in turning the academic toward an acknowledgment of the vexing presence of such veiling mechanisms. In relation to dinosaurs and the Mesozoic, what I hope to do is lay out some propositions about how the academic and the popular trade, and in the process, to characterize the actions which come to be hidden, as well as the revised forms of life that come into being. There is indeed a “sophisticated veiling mechanism” but it is not so easily characterized as a “commonplace method”. The study of the intricate workings of that mechanism is the fundamental purpose of this particular anthropology of dinosaurs.

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<sup>33</sup> Moore 1994:149-50.



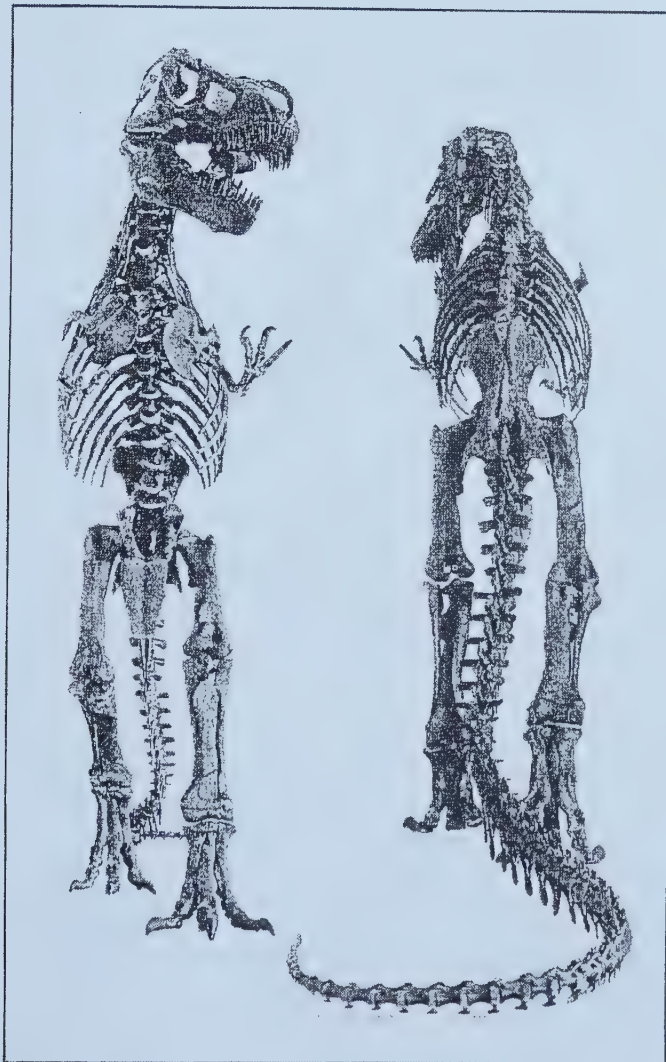


[Part I]

## mesozoic performativity

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### Phantasy, Palaeobiology, and the Performance of Dinosaur Worlds



*Tyrannosaurus rex*, THE KING OF THE TYRANT SAURIANS.

The climax among carnivorous reptiles of a complex mechanism for the capture, storage, and release of energy. Contemporary with and destroyer of the large herbivorous dinosaurs. Compare p. 224.



modern, and they bond people together in meaningfully modern ways.<sup>4</sup> When dealing with dinosaurs as unserious stand-ins, we are allowed to be exuberant, excessive, irreverent, parodic: all because they are both physically not us, yet materializations of much we may believe in. In a single stroke, we can embrace them and cast them away.

At the same time, certain representatives of their ilk have been so extremely *re-presented* as to become the regular inhabitants of contemporary middle class North American nightmares, threatening that which provides greatest security—the American family dog for instance. In a scene from the sequel to the film *Jurassic Park*, a canonically white, heterosexual, middle class San Diego family—mother, father, and five-year old son—rush to the child's room to comfort him after his exclamation that, “there's a dinosaur in the back yard”. They turn to look out the window, and with horror and disbelief meet the gaze of the rampant papa T. rex, chain and dog-house of the devoured family pet hanging impotently from the beast's maw.

That was the summer of 1997, when the largely forgettable Stephen Spielberg film—which unashamedly adopted the title of the Arthur Conan Doyle book, *The Lost World*—was released upon the world and earned more than \$230 million in box office receipts.<sup>5</sup> What is far more disturbing about this scene than the threat portrayed to American-dream security, is that Stephen Spielberg could consciously compose and direct it, knowing all too well that this could be a box-office selling feature. He knew how great its cultural purchase could be, and followed the formula: *First*, let a state-of-the-art animated *Tyrannosaurus rex*, the giant bloodthirsty alien, out of its bounded otherworld, wherever that might be: on an island, in the past of 70 million years ago, in the psyche, in a foreign land. *Second*, set it upon middling American domesticity. *Result*: you stand to frighten people. *Finally*, in the

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<sup>4</sup> Mitchell 1998:58, 107ff.

<sup>5</sup> Washington Post (1999) web site report, sourced from Associated Press film statistics: “Exhibitor Relations; The Associated Press”. Web address: <<http://www.washingtonpost.com/wp-srv/style/daily/movies/100million/article.html>>.





socio-economic domains of western industrial techno-spectacle, you also stand to make enormous profits. The monster released from its boundedness into the world of humans is the operative technology here, a technology in this instance which pits the exotic and terrifying against the domestically stable. It is the same sort of technology which rationalizes the commercial viability of gated communities as a buffer against spectacular fears of an increasingly brutal society.

In keeping with this technology, these next discussions further consider the ways in which humans, dinosaurs, and other non-humans alike come to be fully *entangled* via the resident geography of dinosaurs.<sup>6</sup> That geography is known as the “Lost World” and the “Mesozoic”: two intergrading terms which designate the half-fictional time/space locales in which dinosaurs are resurrected into scientific and public being. Some, like Crichton, Doyle, Spielberg (and some scientists on occasion) refer us to the first term, the “Lost World”, as a locale in which “life continues”. It keeps dinosaurs and otherwise bygone creatures safely bound, until, as in Spielberg’s case, they escape into domestic backyards or break through electrified fences or, with human technical assistance, defy their otherwise normative destiny as extinct beings.

## *Time-Space, Performativity and the Lost World/Mesozoic*

A number of key terms which I use in the coming chapters need to be introduced, most notably, *chronotope*, *performativity*, *phantasy*. I will introduce these terms within the

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<sup>6</sup> Note that although the lost geography of dinosaurs may be bounded and separate, and so apparently disentangled from human lives, that separation is a rhetorical, practiced one which achieves just the inverse. Any ethnographic situating of this figure—as space, time, or materialization—shows that the work it does is that of entangling experts and non-experts in biological, evolutionary, museological, entertainment, and multiple other sorts of contemporary and socially-salient knowledges and practices. As a critical part of the scientific-public trading apparatus, it is therefore, fully entangled with the human within the scope of wealthy technoscientific nations and communities. For a fuller consideration of the notion of “entanglement” as a process effectively drawing entities into relations, see Callon 1998a; Callon (ed.) 1998b:1-57; Thomas 1991.



following discussion of the lost world and the Mesozoic. I begin with the first of these two figures, the lost world.

Arthur Conan Doyle featured a lead character in several of his novels, Professor George Challenger. Challenger, the idealized male adventure-scientist, was first introduced in Doyle's novel *The Lost World*. In that novel, Challenger offered a succinct description of the lost world, contrasting that far-off South American locale with Doyle's own domestic homeworld of Sussex in the South of England. In this description, Challenger outlines the figure as lucidly as any living cryptozoologist could:

*...there can only be one explanation. South America is, as you may have heard, a granite continent. At this single point in the interior there has been, in some far distant age, a great, sudden volcanic upheaval. These cliffs, I may remark, are basaltic, and therefore plutonic. An area, as large perhaps as Sussex, has been lifted up en bloc with all its living contents, and cut off by perpendicular precipices of a hardness which defies erosion from all the rest of the continent. What is the result? Why, the ordinary laws of nature are suspended. The various checks which influence the struggle for existence in the world at large are all neutralized or altered. Creatures survive which would otherwise disappear. You will observe that both the Pterodactyl and the Stegosaurus are Jurassic, and therefore of a great age in the order of life. They have been artificially conserved by those strange accidental conditions.<sup>7</sup>*

In effect, some rather *monstrous* forms of life are isolated from what are accepted as natural historical processes which would otherwise produce familiar, *normal* forms of life. Apart from the Darwinian struggle suggested in the statement by Doyle's Challenger, this technical-sounding description might just as readily have been used as an illustration for Francis Bacon's *Novum Organum* (1620). The logics operating here are remarkably parallel to Baconian *teratology*, that is, the study of monstrosities: *nature in course* is interrupted by *nature erring*. Effectively, in Doyle's lost world, nature's artifice (nature for Bacon being decidedly feminine) allows the monstrous to persist over time by bounding it in space. In

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<sup>7</sup> Doyle 1994 (1912):59-60.



the 1990s, Michael Crichton's *Jurassic Park* would repeat these same conventions of teratology.<sup>8</sup>

In contrast (and complement) to the “lost world”, the technical term for the geological and faunal time/space locale of dinosaurs is the “Mesozoic Era”, said to span the time period from 248 to 65 million years ago, and to be known through study of sedimentary geological localities. Both terms have come to signify journeying, especially masculine journeying—a central thematic of these discussions. The Mesozoic and the lost world have become a unified and highly influential location around and through which science and public culture produce very cultured senses of nature, of certain forms of humanness, and of particular histories of life on earth. They are “formalized” entities that have significant cultural force. Quite significantly, anxiety, fear, and expressions of courage and bravery have become a large part of the sense they entail—as has the numbing multiplication of menacing meat-eating dinosaurs from *Tyrannosaurus* to *Velociraptor*.

Both the lost world and the Mesozoic are time-space figures. They are at once *locales* and *moments*, and they organize and mobilize certain sorts of action. Mikhail Bakhtin's figure of the *chronotope*<sup>9</sup> is eminently applicable in setting the terms for considering how dinosaur geographies—authenticated or not—in the past and the present have continued to operate. He remarks:

*We will give the name chronotope (literally, “time space”) to the intrinsic connectedness of temporal and spatial relationships...What counts for us is the fact that it expresses the inseparability of space and time (time as the fourth dimension of space). We understand the chronotope as a formally constitutive category of literature; we will not deal with the chronotope in other areas of culture.*<sup>10</sup>

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<sup>8</sup> For further discussions of teratology, monster geographies, see, for instance, Wittkower 1942; Warner 1994; Park and Daston 1991; and Braidotti 1996.

<sup>9</sup> Bakhtin 1981.

<sup>10</sup> Bakhtin 1981:84.





Bakhtin dealt mostly with the chronotope of “the road” as an organizer of orderly narrative movement through time/space in “familiar territory”. He also compares this genre to that of “wandering” narratives characterized by the Greek Sophist novel, or the Baroque novel, where “a function analogous to the road is played by an “alien world” separated from one’s own narrative land by sea and distance.”<sup>11</sup> In all such genres, Bakhtin suggests:

*The chronotope is the place where the knots of narrative are tied and untied. It can be said without qualification that to them belongs the meaning that shapes narrative.*<sup>12</sup>

Bakhtin goes further:

*Without such temporal-spatial expression, even abstract thought is impossible. Consequently, every entry into the sphere of meanings is accomplished only through the gates of the chronotope.*<sup>13</sup>

Another key effect of chronotopes is how they necessarily engage in a reality-phantasy<sup>14</sup> exchange, a movement between what counts as concrete or abstract. This is salient in considering the lost world and Mesozoic as well, which both stand as struggles against incredulity and phantasy to establish a sense of the real. Again, while resonating with Bakhtin, this also complicates his point:

*However forcefully the real and the represented world resist fusion, however immutable the presence of that categorical boundary line between them, they are nevertheless indissolubly tied up with each other and find themselves in continual mutual interaction; uninterrupted exchange goes on between them, similar to the uninterrupted exchange of matter between living organisms and the environment that surrounds them. ...this process of exchange is itself chronotopic: it occurs first and foremost in the historically developing social world, but without ever losing contact with changing historical space.*<sup>15</sup>

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<sup>11</sup> Bakhtin 1981:245.

<sup>12</sup> Bakhtin 1981:250.

<sup>13</sup> Bakhtin 1981:258.

<sup>14</sup> re: “phantasy”, see notes 1 and 21 in this chapter.

<sup>15</sup> Bakhtin 1981:254.



Chronotopes then, may organize worlds, times, and narratives. However, as I discuss over the following chapters, they also are drawn upon tacitly, and so unify palaeontological and literary practices. In both instances, chronotopes aid in navigating the ever-uneasy relation between the real and the imagined. They are a means for creating intelligibility, bounding out spatially or temporally material worlds and their constituents. At the same time, they confer *materiality* upon things that are extraordinarily imaginary in their constitution.

Considered side by side, the Mesozoic and the lost world upset any strict distinction between reality and fabrication, truth and lies, fact and phantasy. As such they also cross between and conjoin the actions of technical, scientific, and public knowledges.

In what follows, I extend on these points, focusing on their effects in the mutual making of scientific and public cultures of nature associated with dinosaurs. I work to show that what are taken as media or literary performances or phantasies are more properly part of the *performativity* of scientific practice. They are part of the reality of science, not something outside it, influencing it or biasing it, but rather actually engaged in the very syntax of practice, making the findings of palaeontology—including such entities as the Mesozoic and the “fossil record”—so much more palpable.<sup>16</sup> As Judith Butler points out, such sorts of phantasies, “when wielded within political discourse...posture as the real”, or as Jean Laplanche and J.B. Pontalis put it “phantasy constitutes a dimension of the real”.<sup>17</sup> That key point—of the phantasmatic, imaginary reality of the chronotope of the Mesozoic along with its constituents—is what I will be pressing upon throughout this first section of the dissertation. I also move from Butler’s concentration on gender performativity, to a more widely distributed sense of spatial-temporal-material performativity and of human and non-

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<sup>16</sup> Dinosaur scientists are hardly insensitive to the way that fossil time/spaces are constituted through palaeontological practice. See discussion in Dodson and Dawson 1991:3-15.

<sup>17</sup> Butler 1990; Laplanche and Pontalis 1986.



human performativity, to discuss how the reality of the Mesozoic has acquired its remarkably unquestioned status.<sup>18</sup>

Butler emphasized the importance of materialization as a means of avoiding the restrictive conceptions of ‘social’ or ‘cultural’ constructions: “What I would propose in place of these conceptions of construction is a return to the notion of matter, not as site or surface, but as *a process of materialization that stabilizes over time to produce the effect of boundary, fixity, and surface we call matter.*” That process is referred to as “performativity”.

*Performativity* is a term which has its origins most notably in J.L. Austin’s speech act theory. Butler writes:

*Within speech act theory, a performative is that discursive practice that enacts or produces that which it names. According to the biblical rendition of the performative, i.e., “Let there be light!,” it appears that it is by virtue of the power of a subject or its will that a phenomenon is named into being.* <sup>19</sup>

Citing Jacques Derrida, Butler notes that the “subject” does not have to be “God”—as the biblical example suggests—but simply, those with the status of ‘subject’, those who are accorded agency to act, and so to enact performatives.<sup>20</sup> The most cited case from Austin is the action of marriage ceremonies where the priest or adjudicator utters the performative: “I pronounce you...”, and so produces the real effect of marital union. As Butler points out, such kinds of performative acts (which in this instance perform the norms of heterosexual

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<sup>18</sup> A notable exception is the outright contestation posed in discourses of Christian scientific creationism. See Gish, 1979. Typical in that counter-imaginary practice, is the constituting of biblically endorsed moral otherworlds like “Eden”, or the lands East of Eden, which as I have discussed elsewhere (Noble in press, b) maintained the oppositionality of serpentine, saurian, and monstrous alter-beings. In otherworld-making, mainstream organic evolution and scientific creationism both converge in chronotopic figures, and indeed, it is in the otherworld that the contests for legitimation of these canonically opposed discourses are waged.

<sup>19</sup> Butler 1993:13. For these point she references J.L. Austin, *How to Do Things With Words*, J.O. Urmson and M. Sbisá, eds. (Cambridge, Mass.: Harvard University Press, 1955), and his *Philosophical Papers* (Oxford: Oxford University Press, 1961), especially pp. 233-252. Butler also notes: S. Felman, *The Literary Speech-Act: Don Juan with J.L. Austin, or Seduction in Two Languages*, tr. Catherine Porter (Ithaca: Cornell University Press, 1983), and L. Wittgenstein’s *Philosophical Investigations*. MacMillan 1958, part I, and M.L Pratt 1977. *Toward a Speech Act Theory of Literary Discourse*. Bloomington: Indiana University Press.

<sup>20</sup> Derrida 1988:18.





union into being), "...are forms of authoritative speech: most performatives, for instance, are statements that, in the uttering, also perform a certain action and exercise a binding power."<sup>21</sup>

In the case of the Mesozoic and the lost world, those authoritative subjects who act both through their utterances and practices are the scientists and literary authors who bring the respective hidden worlds into being, in part by pronouncing them, in part by mobilizing a complex of rationalizations. Part of my project is to show over the course of these several chapter that there are other agencies—human and non-human—beyond authorized subjects solely, which are brought into play in the performativity of the Mesozoic. Butler does gesture to the greater complexity at work, beyond the simple action of a single actor at one moment in time, when she writes :

*Performativity is...not a singular "act," for it is always a reiteration of a norm or set of norms, and to the extent that it acquires an act-like status in the present, it conceals or dissimulates the conventions of which it is a repetition. Moreover, this act is not primarily theatrical; indeed, its apparent theatricality is produced to the extent that its historicity remains dissimulated.*<sup>22</sup>

Butler's quote serves to suggest that which is performed into being has force because it draws upon and mimics performances, or performatives, which have preceded it historically—that is by a complicated history of citation and recitation. At the same time, those performances no longer appear to be performances, because they have become so accepted as to hide the history of the practices informing them. A plain linguistic example is in how the repeated use of the term "xerox" to signify a photocopy ultimately comes to be so stabilized in language that when one asks for a "xerox" of some document, the corporate origin which the word designates is usually forgotten, lost, concealed in the utterance, dissimulated. Obviously, with the term xerox, much more came into play along the way

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<sup>21</sup> Butler 1993:225-226.

<sup>22</sup> Butler 1993:12-13.



from marketing and trademarking practices, socio-economic justification for copying, technical developments of machinery for achieving this, effective monopolization of work places in the distribution of photocopying equipment, securities trading, the history of photography and mechanical reproduction, etc. Thinking deeply about performativity allows dimensions of those lost actions to be recovered.

It should be added that Judith Butler's fine-grained analyses on the politics of gender performativity are closely allied to Lacanian psychoanalysis.<sup>23</sup> My intention here is not to follow such an explicit psychoanalytic approach in these discussions—even though the terms used are significantly parallel. But neither am I suggesting that such an approach should be precluded nor that it might not be productive—indeed it is the readmission of such alternate approaches to studies of science that this discussion welcomes. My intention, rather, is to turn the terms “phantasy” and “performativity” in a different direction: toward the materialization of physical nature.<sup>24</sup>

My use of *phantasmatic* is as much aligned with the idea of phantasm as apparition, or projection as in the nineteenth century spectacle apparatus, the “phantasmagoria”.<sup>25</sup> As such, it is a use of “phantasy” which is not grounded in psychoanalytic discourse.

Moreover, this particular sort of phantasy, is grounded in the “ground”, as geologists have

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<sup>23</sup> For a summary of the dense arguments posited by Butler see the review article by P. Cheah 1996. (At web-page: <[http://128.220.50.88/journals/diacritics/v026/26.1er\\_butler.html](http://128.220.50.88/journals/diacritics/v026/26.1er_butler.html)> Please note how Pheng Cheah writes in a manner similar to Butler, a manner I've been working to make more plain for the sake of my readers. Pheng Cheah summarizes: “Butler's account of productive historical forms and her theory of performative agency takes the notion of phantasmatic identification--the assumption of the material mark of sex or the intelligible outline of a body through imaginary and symbolic ingestion--as the paradigm for oppression and subversion. Her immediate frame of reference is, of course, the field of gender, sexuality, and desire. Generalized into a political theory, this notion of phantasmatic identification promises to democratize contestation through the interminable proliferation and destabilization of provisional cross-identifications: “the contemporary political demand on thinking is to map out the interrelationships, without simplistically uniting, a variety of dynamic and relational positionalities within the political field.”

<sup>24</sup> On a technical point, a concern which might be raised by students of Lacanian theory relates to my conjoining of the “phantasmatic” with the “performative”. The Mesozoic might better be taken as an expression of the “social symbolic” rather than the “imaginary”—the latter being associated with the phantasmatic in Lacan's tripartite scheme of the Real / Imaginary / Symbolic. Trish Salah, personal communication, and cf. Bowie 1991:88-121.

<sup>25</sup> For a discussion of the “phantasmagoria” see Altick 1978:217-219.



come to study it. At the same time, the Mesozoic as a figure derived from the study of subterranean features, has a very literal *underworldly* character, such that discussion should no doubt resonate with psychoanalysis.<sup>26</sup> This subterranean aspect of the Mesozoic, as a sort of buried imaginary realm, stands it as something which undergirds the social symbolic, that being in this instance “dinosaurs” themselves. One could just as readily argue that geology’s sedimented earth is the model for the psyche, as the reverse that psychic interests are the model for geology. To muse some, it is through these blended “psychogeological” logics, that the Mesozoic/Lost World figure, in part at least, organizes dinosaurian intelligibility, while hiding within its terms the personal phantasies which human actors are guided by—as should become clear in these discussions of Doyle, Osborn, their allies, and those who followed them in practices of Mesozoic performativity.<sup>27</sup>

With that in mind, the claims I want to make are about scientific performativity of the materialized phantasy of the Mesozoic. This complex of action produces the Mesozoic as land of feared alien others, which is something which extends out and trades with public culture. This complex of action partially regulates and produces palaeontology’s authority along with many other entities distributed across the spectrum of public-scientific activity. It connects the public to the scientific. The reckoning of life, the histories of biological relations, the replaying of masculinist phantasies, the revisiting of colonial logics, the performing of social relations, all get refashioned in this ever-revisable landscape of modern, naturalistic life and death. While the historical reiteration of performatives gives them their

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<sup>26</sup> An interesting case of the conjoining of these two ideas is presented in Wendy Lesser’s book (1987) on the underworld, *Life Below the Ground: A Study of the Subterranean in Literature and History*.

<sup>27</sup> As an additional point, Lacanian theory relies upon certain relatively framed categories—as in the case of its tripartite scheme—for its coherence. My practice attempts, however adequately, to recognize in the Mesozoic a figure which quite troubles those categories—even though they may be useful to others as a means of organizing discussion. The spatio-temporal figure of the Mesozoic/Lost World, indicates contingency of such categories, acting equally well as a ‘symbolic’ domain of scientific and literary practice, and simultaneously as an ‘imaginary’ domain of the very same practices. With that in mind, my use of phantasies is poised not as a boundable domain of knowledge-practice, but as an ever-present action, a means of producing intelligibility. The ethno-historical accounts I present here should be indicative of this sense.





force, my point is that performatives akin to the Mesozoic are also densely and widely represented in human and non-human action. The performances range from literature, to science, to museum displays, to entertainment, to everyday actions. In this sense Mesozoic performativity is both historical (diachronically mobile) and heterogeneous (synchronically distributed).

These concepts are complicated, and their applicability should become clear as the discussion proceeds. I return to these ideas throughout this dissertation, and ultimately in the conclusions.<sup>28</sup>

### Ordering this Discussion

Over this and the following four chapters, I will be working through several situated cases. In Chapter Three, *Land of the Fear, Home of the Bravado*, I start with that prescient moment when America was handed (or rather, one might say when America snatched away) the banner of dinosaur empire from Great Britain in the early twentieth century.<sup>29</sup> In the case which I sketch out — “The Doyle-Osborn Nexus” — the signal actions considered are Arthur Conan Doyle’s racially- and gender-configured adventure novel *The Lost World*. This blends neatly with the evolutionary exploits of the American Museum of Natural History in New York City under the Presidency of eugenics advocate Henry Fairfield Osborn. As it happens, the fossils and imaginings of huge carnivorous dinosaurs — most recognizably, those of *Tyrannosaurus rex* in Osborn’s case — play a significant part in the

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<sup>28</sup> i.e. Chapters 6 and 13 of this volume.

<sup>29</sup> This actually began to take place in the latter part of the nineteenth century, especially through the energetic field collecting activities of Edward Drinker Cope and Othniel Charles Marsh, and Joseph Leidy. Cope and Marsh were wealthy enough to fund their own collecting expeditions to the newly settled ‘frontier’ lands of the American west, and maintained a vigorous, often vituperative, rivalry in their efforts to obtain the finest dinosaurian fossil collections. See Shor 1974; Rainger 1991; Colbert 1968; Wilford 1986; and Spalding 1993.



joint-dramatics of Osborn and Doyle in the making and playing of the lost geography of the Mesozoic.

Following this, in Chapter Four *The Nexus in the Network*, I discuss how the Doyle/Osborn logics and practices come to be materialized and performed in more extended ways, through embodied action, dioramas, and ever wider senses of Mesozoic performativity. In the course of that discussion I develop further the proposition of Mesozoic performativity. I also take up the case of the American Museum's Akeley Gorilla diorama, which Donna Haraway has addressed critically. I consider the 'kinship' of the diorama and the Mesozoic as well as how contemporary cultural studies of science can be brought productively to bear in the study of such cultured materializations of the natural.

Chapter Five, *Recirculating Scenarios: Phantasmaties in the Systematics of Life* starts by presenting a shorthand trajectory of public and scientific cultural action that helps to show the historical connection between the early twentieth century moment and the current moment. The historical account mostly tracks the technical and phantasy trade between authenticated dinosaur palaeontology and the envisioning practices of popular Hollywood and fictional literary production. With that genealogy laid out, I am able to move to the contemporary moment and recent palaeontological practices. Just as the twentieth century began, it is now ending with an impressive upsurge in Mesozoic performativity in scientific and public culture. This can be seen in the extensive production of dinosaur-oriented merchandise, exhibitions, media products, textual references, and has been expressed nowhere more baldly than in the Spielberg/Crichton productions of *Jurassic Park* and *The Lost World* which play upon contemporary fears of biotechnology as a means of profitable entertainment. Emerging through all of this is a new globalized version of dinosaur



palaeontology conducted by a significantly increased, well-sponsored array of vertebrate palaeontologists.<sup>30</sup>

The performative practices of that community are taken up in the latter half of Chapter Five in the section subtitled “Systematics Meets Phantasmatism”. There, I explore ways in which biological systematics (i.e. the technical procedure for ordering the organic world) aligns with the performing of Mesozoic worlds through what Butler has called “imaginary and symbolic ingestion”.<sup>31</sup> The accounts also suggest how palaeontological practices associated with systematic technical studies of dinosaurs are perpetually entailed by phantasmatism and public cultural flows, in spite of sincere rhetorical efforts by palaeobiologists to position their work as relatively free of such flows.

I draw on several sources including primary and secondary historical texts, on my ethnographic notes from scientific meetings and discussions with dinosaur palaeontologists over the years, and on recent conversations with dinosaur researcher, Dr. Andreas Henson of Toronto’s Royal Ontario Museum. I close in Chapter Six *Neocolonialism, Culture and Mesozoic Performativity*, by summarizing the effects and relationalities of Mesozoic performativity as a constraining natural/cultural formation of western life. In addition, I offer some comments on the consequences of these kinds of performativity for contemporary science and cultural studies.

Before proceeding with these various accounts, however, I’d like to provide some preliminary points about the *bracketing* of public and technical culture. Just as the Mesozoic does not exist solely within the discourses or practices of palaeontology and actually reaches widely into public cultural terrain, so the lost world is not something which exists solely in novels, films, and speculative fiction. It operates as well within the everyday practices of highly respected living palaeontologists. It would be useful first of all to sample a few cases

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<sup>30</sup> I return to this point of ‘globalized’ palaeontology in the final chapter of this dissertation, Chapter 13, “More Than a Rex Object?”.

<sup>31</sup> See note 22 above.





of how its logics are dealt with by dinosaur scientists today. These recent cases suggest how phantasy tends to get bracketed, rhetorically at least, out of the systematic technical work of palaeontology—a point to which I will return many times throughout the dissertation.

## *Bracketing Out Phantasmatic Worlds*

Since, as I have already suggested, dinosaurs can be taken quite unseriously, it is probably not surprising to find out that those who study them also have both serious and less than serious relations with the monstrous creatures. Of the highly published dinosaur palaeontologists with whom I have worked closely over the last twenty years or so, every one has been engaged in what is more often seen as “imaginary” or “speculative” work—sometimes spoken of as part of their extracurricular or extra-scholarly activity—but which nonetheless articulated with their serious palaeontological work.<sup>32</sup> One consistency trackable across both the technical and non-technical work, however, is the speculative imagining of an otherworld inhabited by alter-beings.

Take Dr. Philip Currie, for instance, senior curator of dinosaurs at Alberta’s Royal Tyrrell Museum of Palaeontology. In addition to being an aficionado of heavy metal art and music with its primeval world references, Currie has been editor of *ERBivore*, a journal of Edgar Rice Burroughs Tarzan enthusiasts. Notably for Currie, in the *Pellucidar* trilogy, Tarzan encounters dinosaurian creatures called “Gryfs”<sup>33</sup>. Burroughs’ books were a childhood key

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<sup>32</sup> I discuss only three cases here. Some other notable examples of explicit phantasy engagement by palaeontologists include Robert T. Bakker’s, George Gaylord Simpson’s (1996), or William Sarjeant’s involvements in writing speculative fiction novels, Jack Horner’s consulting on Spielberg dinosaur films, Donald Baird’s longstanding interest in 3-D dinosaur imagery. The list goes on, and I’m sure that most dinosaur paleontologists would admit some current or past involvement in speculative or imaginative world-making—from something as simple as dinosaur model collecting—in addition to those which they unavoidably engage in while undertaking technical work.

<sup>33</sup> Currie 1993.



to launching Phil's palaeontological career trajectory, along with the discovery of plastic dinosaurs in packages of Cheerios, back in the late 1950s.

Or take Dr. Andreas Henson of the ROM, who has an encyclopaedic knowledge of giant monster movies from King Kong to the Toho Godzilla films. Henson, who was recently appointed Associate Vice President, Curatorial and Research at Toronto's Royal Ontario Museum, regularly gets asked by the media to speak to the palaeontological veracity of the monsters in films from *Jurassic Park* to the latest American *Godzilla*. [Fig. 4, page following]<sup>34</sup>

Then there is Dr. Dale Russell, formerly of the Canadian Museum of Nature and one of the leading authorities on dinosaur extinction. Russell is a devout Catholic whom I joined on collecting expeditions to China in the 1980s, and who was enamoured with the philosophy of Pierre Teilhard de Chardin, and consequently saw Platonic shadows cast everywhere in the fossil record, where divinely designed organic forms were very likely to recur convergently in evolutionary history. One of Russell's "thought experiments" was given considerable credence by NASA's SETI program: in this case, offering expert consultation on the probabilities of human-like "Dinosauroids" [see Fig. 5, page following]<sup>35</sup>, evolving convergently elsewhere in the cosmos, and (somewhat more strangely) how this might fit with the rather reptilian visage recounted in some notable UFO close encounter reports including those of upstate New Yorkers, Betty and Barney Hill, whom Russell actually interviewed.

Both Currie and Russell have ended up having their tales re-presented in some curious popular press locales: Currie being cartooned in Japanese Manga magazines, and Russell finding his Dinosauroid showing up in sensationalist tabloids—the creatures plotting

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<sup>34</sup> Figure 4, *Godzilla*, Inhabitant of Toho's "Monster Island" (along with *Titanosaurus* and *Mechagodzilla*) Original source Toho Films, 1975, *Terror of Mechagodzilla*. Also see <<http://www.stomptokyo.com/>>

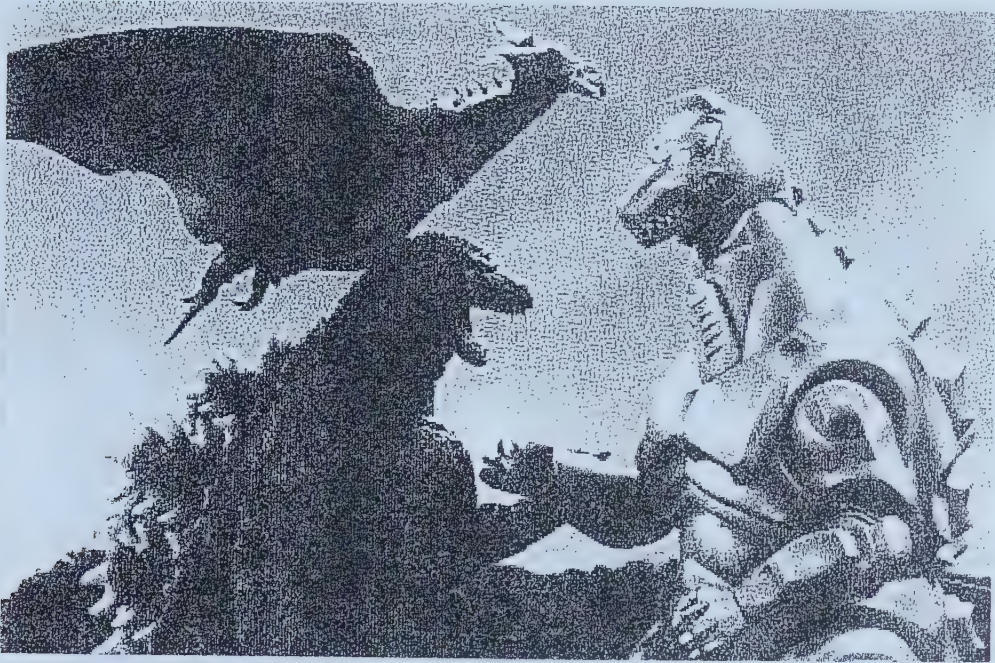
<sup>35</sup> Figure 5, Models of *Troodon* and a hypothetical large-brained descendant. Original source: photograph by Robert Fillion, Reproduced courtesy of Canadian Museum of Nature, Ottawa, Canada. cf. Russell 1989:217.



**Figure 4** (p, 35a)

Godzilla (and others), Inhabitant of Toho's "Monster Island"

Source: Toho Films, 1975, *Terror of Mechagodzilla*, also see <<http://www.stomptokyo.com/>>







**Figure 5 (p. 35b)**

**Dale Russell's "Thought Experiment"**

Models of Tröodon and a Hypothetical Large-brained Descendant.

Source: photograph by Robert Fillion, Reproduced courtesy of Canadian Museum of Nature, Ottawa, Canada. cf. Russell 1989:217.





worldwide conquest from their hide-out at the centre of the earth which they had populated and developed into a civilization clearly more advanced than that of the ordinary earthlings above.<sup>36</sup>

In a very thoughtful and amusing response to the public and technical reaction to his Dinosauroid, having lauded one particularly “well-written article in *Omni*”, Russell points out that the media was quite sensible in their engagement with his thought experiment: “The public owes a great debt to the intelligence, breadth of knowledge, and integrity that I have uniformly encountered among science reporters.”<sup>37</sup> In contrast, Russell encountered very different sorts of responses from anonymous peer reviewers of his technical manuscript on the speculative cousins, *Tröodon* (*Stenonychosaurus* [sic]) and the Dinosauroid:

*“The ideas and methods used in the reconstruction are thorough and even elegant. However, I do not see much value in the extremely speculative ‘dinosauroid’ discussion. Dinosaur studies today are already characterized by a prominent science fiction component.”*

This sort of comment no doubt led Russell to insist to palaeontological colleagues that in developing the dinosauroid, “there was no contact with the producers of “ET”.” Expressing even more pointed nervousness about the potential erosion to the credibility and social position of scientists and their practices—and with a concerned jab at Russell’s convictions toward directional causality in evolution—a second reviewer cautioned:

*“The (dinosauroid) model you caused into being with such surprising results would be difficult to display without encountering retorts you would probably not welcome. Among your peers you would stir much trouble, righteous ridicule and much tut-tutting. I would recommend that—after you have a sufficiency of good photographs—you keep it securely out of sight; or destroy it if the skilled artists will not be too hurt.”*<sup>38</sup>

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<sup>36</sup> Many participants in contemporary Euro-American media cultures know this place so very well. I pointedly recall several familiar cases: Jules Verne’s “journey to the centre of the earth”; Doyle’s lost world; fenced-in, interstate, and interprovincial roadside dinosaur ‘parks’; the film *Jurassic Park*; many *National Geographic Magazine* articles about adventuring to desert landscapes in search of ancient creatures lost in the geological past.

<sup>37</sup> The quotes presented here are from Russell 1987:127-128.

<sup>38</sup> Russell 1987:127.



Many, like those palaeontologists reviewing Russell's article, would probably say all this otherworldly stuff, the drawing of curious affinities between dinosaurs, aliens, and fictional literature, is just extra-scientific noise, hobbyism, amusement, media excesses, indulgent speculation, etc., and has minimal effect on the real action of science. But, these same three scientists (i.e. Currie, Henson, Russell) have also told me explicitly that they literally visualize Mesozoic dinosaurian worlds and build entire scenarios in the act of conducting their research—even as they prospect for fossils or gaze down their microscopes at tiny surface morphologies. Despite this direct phantasizing, they usually claim that they draw a clear separation between this imagining and the technical (i.e. symbolizing) work of observing, collecting, comparing, systematizing, and so on. In effect, they are claiming to *bracket phantasies out*, giving their technical work its purity, its authority, and its truth-like character. They know all too well, that they're not supposed to let that stuff in. Nonetheless, like any prohibition, like any forbidden fruit, it must be extremely enticing.

### Bracketing In Mesozoic Worlds

*If I say 'we assume that the earth has existed for many years past' (or something similar), then of course it may sound strange that we should assume such a thing. But in the entire system of our language games it belongs to the foundations. The assumptions, one might say, forms the basis of action, and therefore, naturally, of thought.*<sup>39</sup>

—Ludwig Wittgenstein.

One has to wonder what truly does get bracketed out, and how palaeontologists resist the potential flood of supposedly phantasmatic incursions into their scientific practices. Well, of course, the regular answer that a scientist will give you is that dinosaurs did once live, they are known from real fossils, and what we experience in literature or film or the media or in imaginative flashes is merely exaggeration, simplification, momentary speculation, or

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<sup>39</sup> Wittgenstein 1969:52e, (#411).





outright distortion. In contrast to such mediated phantasies, however, there is this other scientific temporalized landscape of dinosaurs, that is taken to be very real.

As mentioned already, geologists and palaeontologists generally refer to this time/space locale as the Mesozoic Era, the geological frame said to start roughly around 248 million years ago, and ending roughly 65 million years ago, and consisting of three periods each with their own series of sedimentary geological sequences—the Triassic, Jurassic, and Cretaceous. The most often-cited boundary-making devices in this second scenario-making case are the presence of fossils in geological facies (i.e. strata), or their absence—the latter often taken to indicate local or total extinction.

In his 1970 presidential address to the (American) Society of Economic Palaeontologists and Mineralogists, (Canadian) geologist Digby McLaren emphasized how crucial boundary definition was to the palaeontological enterprise:

*Boundaries require definition, just as much as frogs. [sic] Correlation means time in the proper sense of the word, and is the central underlying primary task of geology. Life is the only, and will remain the only method by which boundaries may be defined and correlated on a world-wide scale to a degree of accuracy far beyond any other. To me this is one of the most important and challenging roles of palaeontology. To this all studies must ultimately be related, whether of morphology, ecology, or evolution. Without knowledge of time, there can be no lineages, and lineages are morphologically distinct units in an evolutionary continuum influenced by the environment. The proper study of life of the past must involve time, and we derive time from boundaries.*<sup>40</sup>

Following these logics, morphological, ecological and evolutionary reconstruction—a sort of “world-making” practice—is achieved within circumscribed boundaries. Moreover, life and its lineages are understandable through time, time is understandable through boundaries, boundaries are understandable through the remains of life, remains of life are understandable through their lineages, and so forth. This very contingent, circular, and reiterative process over the history of geological discourse tends to “harden” the most useful boundaries,

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<sup>40</sup> McLaren 1970:813.



making them more robust and consequently more enduring. Once established, a bounded, correlative temporality—the Mesozoic, for example—tends then to predict the fossils to be found once one has a previous understanding of the age of the geological sequence out of which the fossils are drawn. Certain sorts of life predict certain bounded temporalities, and bounded temporalities in turn predict those sorts of life.

The specific designation “Mesozoic” was proposed by the British geologist John Phillips in 1841 (the same year that Richard Owen coined the term “Dinosauria”), for just such a cause, in order to emphasize faunal fossils that indexed the geological sequences. The Mesozoic, or “middle animal” era, containing as it did many bizarre and gigantic saurians, then obtained a sort of normative vernacular designation as the “Age of the Reptiles”—as opposed to the Cenozoic (also, Cainozoic) or “newer animal” era, which has taken on the typical designation as the “Age of the Mammals”.<sup>41</sup> This simple hierarchy of successive life worlds has likely contributed, for instance, to the cultured oppositionality of the reptilian against the mammalian in wider discourses (including such popular culture cases as the late 1990s North American children’s computer graphics animated television program “Beast Wars” which pits typically evil saurian-cyborgs against typically good mammalian-cyborgs). The name Mesozoic has stuck and expanded tremendously in public and scientific discourse ever since Phillips coined it, with the stratigraphic, faunal and floral diversity it contains diversifying tremendously. In effect, a framing has been imparted, much as in the semiotic process of category definition<sup>42</sup>, and with that a revisable ‘otherworld’ of beings with their own histories and relations, defined in space and time, has been built up.

The phantasmatic slipperiness of this otherworld-making is quite apparent when considering, for instance, how American palaeontologist George Gaylord Simpson used the notion of the “lost world” in his 1984 volume reviewing the history of palaeomammalogical

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<sup>41</sup> Rudwick 1976:200. See Farlow, 1997:107-111; Gradstein et. al. 1994.

<sup>42</sup> See Atran 1992.



study of South America, *Discovers of the Lost World*. The book is subtitled: “An account of some of those who brought back to life South American mammals long buried in the abyss of time”, assigning a rather god-like character to the supposed resurrection capabilities of palaeontologists. But the very style of the sub-title mimics and thereby preserves the phantasmatic twist of Doyle’s subtitle of *The Lost World*: “Being an account of the recent amazing adventures of Professor E. Challenger, Lord John Roxton, Professor Summerlee and Mr. Ed Malone of the *Daily Gazette*.” Of course, Doyle’s sub-title also attempts to lend the title a sort of staid scholarly tonality, while Simpson re-admits to his whiggish history a playful fictional tone. The two books may be seen as complex plays on what counts as factuality and fictionality.

Nonetheless, Simpson attempts to restore the factuality of palaeontology after musing upon and *bracketing out* the fictionality of the lost Amazonian plateau written of by Doyle: *So much for the fictional “lost world”... [however] South America does indeed have a lost world. That world is not living on [isolated plateaus]. It is present in the vast extent, both in space and in time, of the geological strata that have been laid down over the hundreds of millions of years of geological time... [there are] ...many lost worlds...changing constantly and thus becoming lost by extinction, by replacement, and by other changes as time went on.*<sup>43</sup>

By a simple rhetorical move, Simpson—one of the most lauded evolutionary theorists of the twentieth century and co-developer of the modern synthesis in biology—has also effectively *bracketed in* what counts as the ‘true’ lost worlds of the past—which will include, of course, such sedimentary sequences as the Mesozoic, the Cenozoic, the Palaeozoic, and so on.

Similarly, in an article on palaeobiogeography—the technical study aimed at reconstructing past life worlds—Australian palaeontologist Ralph Molnar put it this way: *...the past was literally a foreign world, and a “trip” into the Mesozoic would take us to a place unrecognizable except to specialists in the evolution and history of the earth.*<sup>44</sup>

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<sup>43</sup> Simpson 1984:14. Simpson was referring not only to Mesozoic strata, but all the geological strata of South America.

<sup>44</sup> Molnar 1997:581.





That is the important connection: the Mesozoic, as much a temporal domain, is also a place you travel to, and expertise makes it recognizable. In this vein, Polish palaeontologist

Zophia Kielan Jaworowska stated what has come to count as a basic romantic motivation:

*No scientist familiar with the intellectual adventure of studying animals from times long past will have any hesitation in affirming that to travel millions of years back into the past, which is what palaeontological study amounts to, is much more fascinating than the most exotic geographical travel we are able to undertake today.*<sup>45</sup>

These are rather colonial intonations, speaking as they do of travel, adventure, exotica, of privileged knowers. But in addition to the colonial language, all of this romantic, palaeontological time-traveling talk impresses me as quite phantasmatic. It is a socially-powerful, exclusive phantasmatism which is rooted in the intensity of practices held to back up the claims: here there is also a claim to evidence, to facts, to the matter that gives the worlds made that extra veracity to distinguish them as scientific worlds, from public fantasy worlds (which are somehow held in opposition to be less “grounded”). These tales of searching for material evidence expressly mix up references to time and space. In doing so, they effectively mobilize the spatial journey to the fossil locality as a journey of time—to study fossils is to travel across time. In turn, to travel to this bounded space/time is to find the fossil, map its location, impart privileged knowing in order to place it in a rational order of things, and to return home with the valued object. The parallel with colonial conquest is easy enough to recognize.

Centrally, however, there are important commonalities between all the accounts I have presented so far, including the supposedly extra-curricular, out-bracketing accounts I mentioned earlier: they all produce and operate by means of a time/space geography where the saurian aliens live—in Burrough’s Pellucidar, in Godzilla’s Monster island, in Russell’s extraterrestrial worlds, in *National Enquirer’s* saurian earth core, or in the Palaeontologist’s

<sup>45</sup> Kielan-Jaworowska 1969:176.



Mesozoic biogeography, the abyss of time. Like *Jurassic Park*, and indeed, like any of the multitudes of cheesy roadside attractions, theme parks, and museum displays presenting dinosaurs and their ilk, all of these sites, one way or another, *contain* these tribes of “fearfully great lizards”.<sup>46</sup>

To get a sense of how all these rather blurred fictions and facts, sciences and spectacles of time and space have come together, and to point out both the kind of questionable social and political work they have done in the past, I want now to “travel” in a somewhat more critical way to the early twentieth century.

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<sup>46</sup> “Fearfully great lizard” was the original gloss for “dinosaur” intended by Richard Owen in 1842 when he coined the term for this group of animals. Farlow and Brett-Surman 1997:ix, emphasize this point as a corrective to the more typical gloss “terrible lizard”, insisting that Owen’s intention is that which should be used, as Owen used the superlative form of the Greek root *Deinos*, meaning “fearfully great”. Dutiful dino-philes as they are, they add “Dinosaurs are not lizards, nor are they terrible. They are, instead, the world’s most famous “living” superlative!”.



## Land of the Fear, Home of the Bravado

### The Mesozoic Empires of Henry Fairfield Osborn & Arthur Conan Doyle

#### Doyle's Phantasmaties: The Mesozoic Animates the Lost World

The intensity of trading between literary and scientific actions of the sort I have introduced is no more visible than in the early part of the twentieth century. New fictional/factual spaces of the lost world and Mesozoic were found in natural history museum displays, in the palaeontological elaboration of the Mesozoic, and in popular literature, all of which refracted and rebounded off each other incessantly, the most mainstream of which typically operated by Darwinian logics. Two canonical expressions in these domains were, respectively, Arthur Conan Doyle's romantic adventure novel *The Lost World* (1912), and the palaeontological and public display complex of the American Museum of Natural History (AMNH) in New York. The AMNH in the first three decades of the twentieth century operated under the direction of Henry Fairfield Osborn who, notably, was an advocate of a variety of Lamarckian principles which, as it turns out, helped to brace up his white, Anglo-Saxon supremacist eugenics philosophy, a philosophy which resonates with the ideas present in Doyle's novel.

I will start with Doyle. The narrative of his 1912 *Lost World* novel may be abstracted as follows: an irascible English zoologist by the name of George Challenger presents some limited evidence at a meeting of the London Zoological Society of a virtually unexplored





Amazonian plateau where time has stood still and prehistoric creatures still survive—a host of great dinosaurs, marine reptiles, giant mammals, flying reptiles, and even a “mysterious” white spirit beast among them. The young journalist who narrates the tale, Edward Malone, had been very impressed by the evidence—which included a fragment of a bat-like wing supposedly from a pterosaur—when it was shown to him earlier by Challenger:

*There could be no getting away from it. The cumulative proof was overwhelming. The sketch, the photographs, the narrative, and now the actual specimen—the evidence was complete.*<sup>1</sup>

For the Zoological Society, however, the evidence was incomplete, potentially contrived. With the proofs disputed, a new expedition is commissioned by the Society, and another eminent zoologist Professor Summerlee along with a “great white hunter” figure and dandy Lord John Roxton, plus the journalist Malone, make their way in search of the “lost world”, also known as “Maple White Land”, named after its original discoverer. Challenger, surreptitiously joins the team once they have made their way well into the South American continent. The colonialist tale then spins through the journey to the lost world plateau, where dinosaurs are indeed encountered living variously in conflict or harmony with a hierarchically ordered array of humans and proto-humans. The segments intended to generate terror are those when the narrator, Malone, is chased by a great meat-eating dinosaur, probably of the type “*Megalosaurus* or *Allosaurus*” in Challenger’s words. Ultimately—in the manner of Gulliver proving his sanity by the revelation of his Lilliputian sheep—the team returns with the final, indisputable proof, a living Pterosaur.

While along one axis, *The Lost World* performs much like a modern museum with its tale about wonders of nature, evidence, the production of facts, it is also, more to the point, a tale of the imperial and colonial adventure networks of male bonding, that is, of an ardent

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<sup>1</sup> Doyle 1994 (1912):58.



homosociality.<sup>2</sup> That performance network helped in the early twentieth century to produce both the veracity of dinosaurian worlds and a more common knowledge of progressive evolution. In turn, it also authorized the work of scientists and the institutions of science.

Doyle's lost world operates through the idea of a rupture between the civilized and the savage, creating the sense of both evolutionary (i.e. temporal) and geographic (i.e. spatial) distance from the book's reader. The journalist Malone, in keeping with the normative, heterosexual logics of the book, has joined the journey to show his fiancée Gladys his capacity for manly heroism. The rupture is clearly expressed in the narrative after the team arrives on the plateau. Here, Malone has ascended an adjacent pinnacle of rock, made a temporary bridge of a tree, which has promptly fallen into the chasm leaving them "lost", as it were, in the remote world. (As an aside, that falling tree and its signification would be replayed in the 1925 film version of the Doyle novel, and again in the 1933 film *King Kong*). Malone ponders the situation:

*By no possible means could we get back to the pinnacle. We had been natives of the world; now we were natives of the plateau. The two things were separate and apart. There was the plain which led to the canoes. Yonder, beyond the violet, hazy horizon, was the stream which led back to civilization. But the link between was missing. No human ingenuity could suggest a means of bridging the chasm which yawned between ourselves and our past lives. One instant had altered the whole conditions of our existence.*<sup>3</sup>

In due course, the evolutionary rupture yawning between them is implicitly filled in by a hierarchy of racialized players all located lower down on Doyle's developmental scale from Challenger and his cadre of white male compatriots—they are aided by "faithful" Amazonian Indians up the river, by their African slave "Zambo" who, as Doyle puts it has "an honest

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<sup>2</sup> "Homosociality" is a term used in critical gender studies and refers to the generalized sense of male fraternal solidarity and social bonding. Arguably, it could apply to all same-sex, or same-gender forms of social bonding.

<sup>3</sup> Doyle 1994 (1912):135. Note that several editions of Doyle's novel have been used as sources. The 1994 edition noted here is used as a textual source, one which for all intents and purposes matches original editions. Images cited and used in this essay are from one of two 1912 (i.e. first) editions of the novel, one being a London edition, the other New York.



black face” and a “Herculean figure” — but then in turn they are betrayed by their Mestizo, or in Doyle’s terms “half-breed” guides. Like many early twentieth century European intellectuals, enamoured with notions of progress, for Doyle racial purity is prized, and racial mixing is suspect—if an ongoing fascination.<sup>4</sup> To Doyle, the pure of race are honest and faithful, the miscegenated are faulty and amoral, contaminated. In addition to the dinosaurs, inhabiting the plateau are a population of aboriginal peoples he calls the Accala who are written of as “little, clean-limbed, red fellows whose skin glowed like polished bronze” — again evoking a Classical perfection — and as well a population of ape-human hybrid people, the ape-men who in contrast are reckoned as “malevolent”, “bestial and ferocious”.<sup>5</sup> When the two come into conflict, the gun-toting Englishmen ally themselves with the Accala, and defeat the half-human, half ape creatures. The colonial character of the narrative is undeniable. Challenger pontificates on the event:

*All the feuds of countless generations, all the hatreds and cruelties of their narrow history, all the memories of ill-usage and persecution were to be purged that day. At last man was to be supreme and the man-beast to find for ever his allotted place....These fierce fights, when in the dawn of the ages the cave-dwellers held their own against the tiger folk, or the elephants first found that they had a master, those were the real conquests — the victories that count. By this strange turn of fate we have seen and helped to decide even such a contest. Now upon this plateau the future must ever be for man.*<sup>6</sup>

Challenger means “man” here in the doubly gendered and humanized sense. And if the masculine is the seminal force of conquest in the Lost World, then the feminine is the germinal centre of the landscape itself, the most interior secret of this land of mystery and wonder. When the central lake of the plateau is located, in standard imperialist style, it must be named. The young Malone was given the nod for this, immediately thinking of his fiancée, Gladys:

<sup>4</sup> See discussion of the prevalence of the hybridity theme within colonial discourse in Young 1995.

<sup>5</sup> Doyle 1994 (1912):171,173.

<sup>6</sup> Doyle 1994 (1912):232,233.





*'By all means. Let our young friend give it a name,' said Challenger...  
'Then,' said I, blushing, ...'let it be named Lake Gladys.'  
...Challenger looked at me sympathetically, and shook his great head in mock  
disapproval. 'Boys will be boys,' said he. 'Lake Gladys let it be.'*<sup>7</sup>

It was Malone who first gazed upon the Central lake and charted it after climbing the tallest tree on the plateau, producing this curiously cellular, even gynecological map of his dawn world [Fig. 6, below] — the central Lake Gladys being the final mystery plumbed in the adventure. Malone expressed his thoughts: “For once I was the hero of the expedition. Alone I had thought of it, and alone I had done it; and here was the chart which would save us a month’s blind groping among unknown dangers. Each of them shook me solemnly by the hand.” In this male rite of passage, Malone is accepted by his learned and powerful colleagues now as the day’s ‘hero’, for the daring work of having climbed a tree in order to get a view, a view enabling the making of the map, and with that the framing and entailing of the world. In a very Foucauldian sense, through the power and mastery of the gaze, the object world itself is produced, and in the same action Malone is also made into a fully modern masculine subject, though only one of “a range of masculinities” Doyle delighted in exploring.

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<sup>7</sup> Doyle 1994 (1912):177.







both the primitivist excesses of a powerful ape-like body, and a heightened intelligence producible only by the most advanced evolutionary processes known to the science of Doyle's day. Given that whenever he had the chance, Doyle would eagerly dress up and pose as Challenger on book tours<sup>10</sup>, it was clear that his Professor was a superhuman figure, "the embodiment of many of [Doyle's] male fantasies" as Jaffe properly noted.<sup>11</sup> [Fig. 7, page following]<sup>12</sup>

Whereas Doyle may have begun rehearsing masculinity through the male circle of the Sherlock Holmes novels, that rehearsal blossomed fully into blatant mimetic self-performance in Doyle's ultimate identification with Professor Challenger. George Mosse, writing on late nineteenth century conditions of European and North American urban masculinity suggested how such excessive performances would have been situated against popularized fears in Doyle's times:

*Modern masculinity was put to the test toward the end of the nineteenth century... The fin-de-siècle was [a turning point]: the years roughly from the 1870s to the Great War gave a new impetus to both masculinity and prolonged economic crises, and new technologies ... added to the anxieties of the upper and middle classes by the end of the century ... Just as important, such threats to individual health as syphilis, tuberculosis, and hysteria were becoming a general obsession ... Under such circumstances the ideal of masculinity ... had to be defended more strongly...[sic]<sup>13</sup>*

And Doyle felt himself a victim to this sense of threat. One of the ongoing political causes in his life was his battle against British legislative reforms improving the rights of women in matters of marital property, divorce, maintenance payments and custodial care, all of which Doyle took as an assault upon what he believed was the dominion of male privilege. Doyle's challenge of the Divorce Act was an act of anxiety over a perceived threat to Victorian, imperial masculinity. As witnessed by the Central Lake Gladys—Gladys who

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<sup>10</sup> Jaffe 1987:99.

<sup>11</sup> Jaffe 1987:99.

<sup>12</sup> Figure 7, Source: Doyle 1912b:facing title page.

<sup>13</sup> Mosse 1996:76,78,79, as quoted in Kestner 1997:7.





**Figure 7** (p. 49a)

Arthur Conan Doyle (centre) Posing as Professor Challenger,  
With other mimicked adventurers from *The Lost World*, l-r, Malone, Summerlee, Roxton  
Source: Doyle 1912b: frontispiece illustration, facing title page





had challenged her Malone to find a manhood-proving adventure—the threat to the masculine transposed readily onto this feminized element of the unknown and mysterious, which if left unknown, unplumbed—and literally here, *unmapped*—would leave an otherwise proper man incomplete. Drawing explicitly on sexual tropes, Malone notes that with his colonial achievement:

*...we should [now] return to London with first-hand knowledge of the central mystery of the plateau, to which I alone, of all men, would have penetrated. I thought of Gladys, with her, 'There are heroisms all round us'. I thought of McArdle, and that three-column article for the paper! What a foundation for a career!*<sup>14</sup>

Doyle's repeated returns to this event in the novel underscore how crucial a thematic and throughline of the text it was. In more ways than one, it is the climactic moment for Malone, whose first person narrative guides the text, and the moment appears as the resolution of the challenge posited at the beginning of the narrative. Relevantly, Malone is abandoned at the end of the novel by his fiancée Gladys, who has married a solicitor in his absence, as if to undermine his youthful faith in women. Doyle's disillusionment is conveyed through this convention. Jaffe notes how for Doyle, women are reckoned as, "at least equal participants in (and perhaps, given their position as moral arbiters of society, the prime exponents of) a society that has replaced adventure with superficial social restrictions, curiosity with fear, and aggression with meekness."<sup>15</sup>

For Doyle, the proper role of the feminine is to be "plumbed", "penetrated", and conquered as would be experienced in the mysterious plateau of primordial "nature", not rather the restriction of male agency, the threat he identified with Victorian socio-political change. In the final moments of the text, Malone chooses to seek out further male-bonding adventures with his new fraternity—at the same time, renouncing his associations with women. This of course, leaves open the future to revisit and reproduce the thematic of male

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<sup>14</sup> Doyle 1994 (1912):179.

<sup>15</sup> Jaffe 1987:98.



adventuring in the Doyle novels to follow this one. In the process, nature is thoroughly entailed by the very located, masculinist sensibility of Doyle.

The purpose of Doyle's scientific adventure was mirrored by what he saw the literary adventure to be as well—to achieve romance, proof, masculine completeness. In an 1896 speech, Doyle expressed this very anxiety about manly wholeness attainable through the literary imaginary:

*The man who does not care for the story is an incomplete man. The man who does not care for anything that has ever been or can be on God's earth is an incomplete man.*<sup>16</sup>

Returning specifically to the dinosaurs of *The Lost World* again, they appear as a materially sourced, if phantastically animated challenge to be taken on by Doyle's team of adventurers in order to further assure the fullness of their masculinity. He effectively uses the saurians as an oppositional technology of fear and encounter, a foil and contrast to his heroic English figures of bravery and manhood. The carnivorous dinosaur in particular is the utterly menacing opponent against which the resilience of an embattled, rugged, unrelenting imperial manliness could be played out.

But in addition, having been radically separated into an alter-geography, presented as an ultimate form, and positioned as the most brutal foe in nature to the accomplished, technologically capable European man, the carnivorous dinosaurs could also become the exemplar against which an even more superior human attainment could be demonstrated. Malone, having been driven into a pit by one such big meat-eater, reflects nervously on its adaptive status:

*I recalled a conversation between Challenger and Summerlee upon the habits of the great saurians. Both were agreed that the monsters were practically brainless, that there was no room for reason in their tiny cranial cavities, and that if they have disappeared from the rest of the world it was assuredly on account of their own stupidity, which made it impossible for them to adapt themselves to changing conditions.*<sup>17</sup>

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<sup>16</sup> Doyle 1896. His comment in a speech published in *The Critic* 1 August 1896:78-9.

<sup>17</sup> Doyle 1994 (1912):192.





So, we have this key adaptive point: intelligence is the key to success, to the ability to change with changing conditions. Those who have attained such an adaptive advantage are equipped to free themselves from the bondage of stasis which the bounded world of the plateau examples—Challenger and his party will be able to depart, whereas the human and animalian natives of the plateau, are implicitly doomed to remain.

This survivalist point presents an apt entry point to the actions of Henry Fairfield Osborn, and as well to one of his most recurrent fixations—giant powerful creatures, including his personalized, most giant of all fierce creatures, the type specimen of the great meat-eater *Tyrannosaurus rex*. Just as modern man was reckoned as ultimate in the evolutionary order of the contemporary moment in Euro-American privileged social worlds, *Tyrannosaurus* became the ultimate in the evolutionary order of the Mesozoic for Henry Fairfield Osborn, who in 1906 described and dubbed this creature “King of the Tyrant Saurians”. Like Osborn, Doyle’s Challenger fully recognized and endowed an unsurpassable natural-cultural potency in the giant carnosaurs:

*Among them are to be found all the most terrible types of animal life that have ever cursed the earth or blessed a museum.*<sup>18</sup>

The first museum to receive Challenger’s blessing of such an accursed terror was New York’s American Museum of Natural History in 1908, four years prior to the appearance of Doyle’s novel.

### Osborn’s Phantasmatics: The Lost World Animates the Mesozoic

A rather remarkable thing about Doyle’s text, is that it is a virtual template for the politically-animated, scientific, educational adventure project which Osborn followed in his

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<sup>18</sup> Doyle 1994 (1912):161.



42 years at the American Museum of Natural History—from 1891 to 1908 as head of the Department of Vertebrate Palaeontology, and then from 1908 to 1933 as President of the institution.<sup>19</sup> What follows is a recounting of the major elements of the corresponding phantasmaties and performative actions of Doyle and Osborn.

Recall Doyle's troop of masculine adventurers. Osborn would produce similar homosocial networks who would journey into the American west, to Patagonia, Central Asia, and other exotically attractive locales. In contrast to Doyle, Osborn would achieve this in a much more forceful, authoritative *institutional* setting, at first in the vertebrate palaeontology programme, but eventually throughout the entire institution. In her article "Teddy Bear Patriarchy", Donna Haraway has demonstrated a similar effect in the zoological collecting and diorama programmes of the museum under Osborn's direction.<sup>20</sup>

Through the AMNH and its institutional practices, and matching the bravado of *The Lost World*, Professor Challenger, Osborn helped to stage the very sorts of performances of the masculine which Doyle had narrated in the novel. Instead of the wealthy Great White Hunter, Lord John Roxton, Osborn had the gentleman dandy Barnum Brown, known commonly as the greatest "dinosaur hunter" ever, and reputed to be "the perfect lady's man", always dressing impeccably in the field. Instead of the scholarly Professor Summerlee, Osborn had the highly regarded evolutionary scientists William Diller Matthew, Matthew King Gregory, Edwin Colbert, and George Gaylord Simpson. These lauded vertebrate palaeontologists were known to have undertaken the lion's share of descriptive work and basic technical drafting of texts which Osborn would then modify to conform to his own evolutionary visions. Rather than journalist Malone, Osborn had large phalanxes of the American press corps on hand. Rather than needing the support of the London Zoological

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<sup>19</sup> For the discussion of Osborn, I have drawn on several sources, but in particular the social history work of Ronald Rainger in his 1991 book: *An Agenda for Antiquity: Henry Fairfield Osborn and Vertebrate Paleontology at the American Museum of Natural History, 1890-1935*.

<sup>20</sup> Haraway (1984) 1989.



Institute, Osborn founded what would soon become the most influential palaeontological society in the world.<sup>21</sup>

Using his own personal wealth in many instances, or drawing on favours of wealthy patrons, Osborn was able to extend himself everywhere through his sometime pliant, sometimes diffident group of male colleagues. In this and more, he was a disturbingly consummate *articulator* of what he felt counted in the natural order. He knew how to mobilize the actions of many, the fossils, the instruments of science, and institutional credibility to co-produce the matter of fact outcome of natural knowledge. The common ground for all, was the Mesozoic, the temporalized landscapes in which dinosaurs could be found, resurrected, and reconstructed into visible, energetic, interactive being.

Notably, Barnum Brown had come to be known—and is still reputed among dinosaur palaeontologists and popular media accounts today—as the “greatest” dinosaur collector of all.<sup>22</sup> To the extent that he was also the best-funded collector of his day owing to the support of Osborn at the helm of the AMNH budget, this would have to be true. Osborn also used his connections to railroad magnates like Morris K. Jessup and J.P. Morgan to his advantage, to take on the costs of moving the giant bones from their localities in the American and Canadian west where Brown worked most intensively. As such, “...Osborn was able to minimize costs pertaining to some of the more expensive aspects of work in vertebrate palaeontology.”<sup>23</sup> Moreover, Brown also found the first specimens of the fossil creature Osborn would name *Tyrannosaurus rex*, the creature which, by the measure of Osborn and many vertebrate palaeontologists following him, was the “greatest” dinosaur of

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<sup>21</sup> Rainger 1991:85. Rainger notes that the Society of American Vertebrate Paleontologists of 1902 was the precursor of the Paleontological Society which succeeded it in 1909. Osborn is considered the founder of both.

<sup>22</sup> The 1998 3-D, IMAX film “T-rex: Back to the Cretaceous” presents Brown in these terms. Among palaeontological and historical accounts see Colbert 1968; Spalding 1993; Farlow and Brett-Surman 1997:712; and also see Mitchell 1998:143.

<sup>23</sup> Rainger 1991:62.





all time. In this as well, Brown had earned a distinction in the world of masculinist, imperialist achievement that would be difficult to surpass.

Recall Doyle's fixation on spectacular evidence as proof of his lost land. Science Historian Ronald Rainger noted how Osborn took full advantage of the spectacle of giant vertebrate fossils:

*To the wealthy philanthropists who donated to the museum and dominated its board, fossil vertebrates were rare, large, and obvious facts whose display would increase the status of the museum and its benefactors. ... Fossil vertebrates also had sheer entertainment value and could contribute to public education. As the documentary evidence for evolution, fossil vertebrates could convey to the public the importance of nature and nature's laws. Osborn quickly and enthusiastically embraced those objectives.*

In sportsman-like fashion, Osborn would meet regularly at the Boone and Crockett club (which had been founded by Teddy Roosevelt) with New York's wealthy elite—J.P. Morgan, Morris K. Jessup, and a host of other such widely recognized names in then-current circles of big American capital including the Vanderbilts, Fricks, Rockefellers, and Dodges. These families, including Osborn's were closely knit not simply in their sporting attitudes, but as well through extensive intermarrying.

Recall the imperial conquest by "man" on Doyle's South American dawn of time plateau. Osborn had assisted Teddy Roosevelt in his adventuring ambitions, supporting his organizing of the Roosevelt-Rondon zoological collecting expedition across the Paraguayan-Brazilian frontier in 1913—one year after the publication of *The Lost World*—with scientific and logistical support from the museum's ornithology department.<sup>24</sup> Doyle, like Osborn, admired Roosevelt whom he compared to Challenger for having undertaken such a journey of discovery through South America.<sup>25</sup> Later, in the 1920s, Osborn sent out his champion expeditionary leader, Roy Chapman Andrews—reputed by some to have been the model for Spielberg's Indiana Jones—to search for hominid origins, Osborn's "Dawn Man" in

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<sup>24</sup> cf. Miller 1918. For an uncritical summary account, see Rexer & Klein 1995:163-71.

<sup>25</sup> Higham 1987:240.



Mongolia. Instead, Andrews came back with fossil dinosaur eggs and an array of other mammalian and dinosaurian fossils, which the institution nonetheless would parlay into a media frenzy. In imperial, colonial style, Andrews entitled his final report “The New Conquest of Central Asia”.

Recall Doyle’s embodiment of supreme masculinity, Professor Challenger. Osborn’s ultimate man who “personified the Anglo-Saxon male potency”—as Tom Mitchell put it<sup>26</sup>—and through whom Osborn could further extend himself, had to be Andrews, the intrepid, hero of Central Asian conquest. Andrews, as if he had just put down a copy of Doyle, would swagger out his phantasies of romantic adventure at every opportunity:

*We stand on the threshold of a new era of scientific exploration, which is just as romantic, just as alluring and just as adventurous as that of Peary and Amundsen, of Stanley and Hedin. In almost every country of the earth there lie vast regions which are potentially unknown. Some of them are mapped poorly if at all, and many hold undreamed-of treasures in the realm of science. To study these little known areas...to learn what they can give in education, culture, and for human welfare—that is the exploration of the future!*<sup>27</sup>

Andrews’ 1920s ode to manly exploration reads almost like a direct reply to one lament from Doyle’s *The Lost World* about the impending end of colonizable terrain:

*...the big blank spaces in the map are all being filled in and there’s no room for romance anywhere.*<sup>28</sup>

Recall Doyle’s logics of racial purity and fear of contamination. Then note Osborn as he presides over the Second International Congress of Eugenics held at the AMNH in 1921, while simultaneously developing a collection of murals for the “Hall of the Age of Man” depicting racial advancement. Osborn, as if quoting Professor Challenger after the great battle on the plateau, would write that the displays demonstrate:

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<sup>26</sup> Mitchell 1998:168.

<sup>27</sup> Quoted in Rainger 1991:102. Original in Andrews 1932:9-10.

<sup>28</sup> Doyle 1912a:19.



...the struggle of man from the lower to the higher stages, physically, morally, intellectually, and spiritually. Reverently and carefully examined, they put man upwards towards a higher and better future and away from the purely animals stage of life.<sup>29</sup>

Recall Doyle's ability to depict and animate an entire world of powerful otherwise-extinct creatures. Osborn, with the financial aid of J.P. Morgan, sponsored the artwork of Charles Knight—without a doubt the most copied illustrator of prehistoric creatures ever. Knight's work was the basis of several of the illustrations in the first editions of *The Lost World*, and then became the visual source for myriad Hollywood giant saurian films.<sup>30</sup> Under the close direction of Osborn and William Diller Matthew, Knight would produce some exceptionally energetic dinosaurs—notable embodiments of Osborn's conceptions of evolutionary advancement. These illustrations would in turn become the templates for entire skeletal mounts depicting the interaction of dinosaurs, most notably carnivores like *Tyrannosaurus* or *Allosaurus* pitted against each other, or against impressively large herbivores or alternately—in Osborn's terms—"defensively" adapted herbivores like the horned dinosaur *Triceratops*. The fossil evidence for these tremendous battles for survival amounted to bite marks on bones—no dueling dinosaurs in death postures had been found—and Osborn's imagining was very particular here. All the same, these displays "...meshed with Osborn's interests in glorifying the struggle for existence."<sup>31</sup> Again, Osborn's interests, along with those whom he held closely within his technical-scientific network, were extended into the very scene of the display which would then become the model for generations of highly imitative dinosaur exhibitionary practices.<sup>32</sup> [Fig. 8, & Fig. 9, pages following]<sup>33</sup>

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<sup>29</sup> Quoted in Haraway 1989:57. For another discussion of the connection between dinosaurs and Osborn's racism, see Mitchell 1998:149-152.

<sup>30</sup> See Glut 1980; Glut & Brett-Surman 1997; Czerkas & Glut 1982.

<sup>31</sup> Rainger 1991:163.

<sup>32</sup> Stephen Czerkas, personal communication; and in general see Czerkas, S. 1987.

<sup>33</sup> Figures 8 and 9, Sources (respectively): Osborn 1917:224, *Tyrannosaurus* faces off with ceratopsian dinosaurs, "Fig. 102. Offensive and Defensive Energy Complexes."; Osborn 1917:213, *Allosaurus* devouring a herbivore, "Fig.91. A Carnivorous Dinosaur Preying Upon a Sauropod."





## Figure 8, Figure 9 (p. 57a)

### Osborn's "Offensive and Defensive Energy Complexes"

Source: Osborn 1917:224, *Tyrannosaurus* faces off with ceratopsian dinosaurs, "Fig. 102. Offensive and Defensive Energy Complexes."



FIG. 102. OFFENSIVE AND DEFENSIVE ENERGY COMPLEXES.

The carnivorous "tyrant" dinosaur *Tyrannosaurus* approaching a group of the horned herbivorous dinosaurs known as Ceratopsia. Compare frontispiece.

The Ceratopsia are related to the armored *Stegosaurus* and to the armorless, swift-moving Iguanodontia. Restoration by Osborn in the American Museum of Natural History, painted by Charles R. Knight.

## Osborn's Translations to Mounted Skeleton and to Life Restoration

Produced in collaboration with Charles Knight

Source: Osborn 1917:213, "Fig.91. A Carnivorous Dinosaur Preying Upon a Sauropod.



FIG. 91. A CARNIVOROUS DINOSAUR PREYING UPON A SAUROPOD.

Skeletons (left) and restoration (right) of the bipedal dinosaur *Allosaurus* of Upper Jurassic and Lower Cretaceous time in the act of feeding upon the carcass of *Apatosaurus*, one of the giant herbivorous Sauropoda of the same period. Mounted specimens and restoration by Osborn and Knight in the American Museum of Natural History.



Though the two moved through common social circles, and the extent of their cultured sense of things was astonishingly parallel, it's uncertain as to whether Doyle and Osborn ever actually met.<sup>34</sup> It is known, however, that the vertebrate palaeontologist Ray Lankester, Director of the British Museum (Natural History) (1898-1907), maintained a correspondence with both of them, no doubt facilitating circulation of their various conceptualizations. It is also known that Doyle derived a great degree of his ancient world envisioning from the published popular lectures on the topic of "Extinct Animals" which Lankester had delivered prior to 1905.<sup>35</sup> Staff from the British Museum, and possibly Lankester himself, went with Doyle to cast dinosaur footprints which the novelist had learned were located in a rock quarry near his home in Sussex.<sup>36</sup> Doyle's *Challenger* even refers to his "gifted friend, Ray Lankester" then cites precisely the text from one of the captions for an illustration of *Stegosaurus* in Lankester's book, "Probable appearance in life of the Jurassic Dinosaur *Stegosaurus*. The hind leg alone is twice as tall as a full-grown man."<sup>37</sup>

Lankester's dinosaurian otherworld-making is familiar enough in one of his very direct synopses of the Mesozoic time/space as understood through its faunal inhabitants:

*The great interest in regard to extinct reptiles centres in those which were so entirely different from the reptile of to-day that naturalists have to make separate orders for them. Many of them were of huge size. They flourished in the Mesozoic period and abruptly died out; ...They are a prominent example of that kind of extinct animal which is not the forefather, so to speak, of living animals, but of which the whole race, the whole order, has passed away, leaving no descendants either changed or unchanged.*<sup>38</sup>

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<sup>34</sup> I've found no mention of this in the secondary literature. Ronald Rainger also informed me that he had not come across any indication of their having met or corresponded during his research into Osborn's correspondence (personal communication, 1998).

<sup>35</sup> Noted in Jaffe 1987:99; Higham 1987:234; Orel 1991:165, note.

<sup>36</sup> Jaffe 1987:99.

<sup>37</sup> Doyle 1912a:39; cf. Lankester 1905:209, fig.150

<sup>38</sup> Lankester 1905:191-2.



Some basic, distinguishing points of the pervading cultural logics of the Mesozoic traded by Doyle and Osborn (and many others) are readily discernible in Lankester's description. The Mesozoic is "entirely different from today", in effect a land of radical otherness. Indeed the extreme alien character requires naturalists to "make separate orders for them", which is also to say that within the Mesozoic there are internal differences and lineages among dinosaurs. It was an organically whole, functioning time/space such that dinosaurs "flourished" there as an entire "order" or "race" of beings. And finally, they "abruptly died out" and were in no way to be considered as "forefather" to living animals. The totality of their extinction ensured that they were fully bounded from the world of later, contemporary natures. This vernacular account, of course, fits the standards of biostratigraphic boundedness which Digby McLaren stressed as essential to technical evolutionary description.<sup>39</sup>

Here was the parallel rupture between the ancient and the contemporary, the savage and the civilized, which Doyle also expressed through his figure of the plateau. Difference was expressed first of all within the time/space itself in a sort of ordering of saurian races which Lankester would then itemize in his lectures, and expressed secondly as a radical contrast to contemporary orders of life. The Mesozoic, like the Lost World, was indeed a "heterogeography", a parallel universe or land of difference. This radical opposition of the saurian "middle animal" world with the later mammalian "new animal" world has come to undergird so much in cultured ideas of nature, superseding even the flow of transformation, of "unfolding", implicit in the terms of "organic evolution".

The description also demonstrates the way that scientific-phantasmatics of the Mesozoic, such as those of Osborn and his living cohort, are closely allied to literary-phantasmatics such as those of Doyle and his narrated cohort. Both maneuver and align with the logics of colonial space. Aside from the common phantasms visible in the otherworld-making practices of Doyle, Osborn, and Lankester, the network of trading is evident in the direct use

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<sup>39</sup> See quoted statement in Chapter 2, reference note 39.





and copying of the illustrations of Charles Knight in common among all three players. Knight's *Stegosaurus*, first drawn in 1897, was then reproduced in association with articles by Osborn and William Ballou in the popular *Century Magazine*.<sup>40</sup> It was later modified by Lankester in his volume, and then roughly copied with the addition of an inserted human figure in the early editions of Doyle's novel.<sup>41</sup> Eventually, it was scaled up and presented as part of the displays of the museum, alongside skeletal mounts of the creature.<sup>42</sup> Visitors to the museum, who might also be readers of Lankester, Osborn, and Doyle, among many others, were exposed to recurrent vision of this form of creature, associated as well with the composite of landscapes depicted in the life restorations and narratives cutting across the various media.

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<sup>40</sup> Osborn 1897, and see Ballou 1897.

<sup>41</sup> Lankester 1905:209, fig.150; Doyle 1912a:frontispiece illustration, facing title page.

<sup>42</sup> Stephen Czerkas (1987) contours in considerable detail the reconstructual history of *Stegosaurus*, attempting in particular to sort out interpretations of plate arrangements in different illustrations. Most importantly, however, it is clear that the Knight life restoration of 1897, plate and spike arrangement notwithstanding, has become the visible template most drawn upon in the conceptualizing of *Stegosaurus*.



## Osborn's Phantasmaties: The Mesozoic/Lost World Animates Tyrannosaurus and the Heredity Germ

What I have presented so far, are a combination of embodied, material, and representational practices that communicate across the socio-culturally erected yet extremely permeable boundaries of literary and institutional-scientific domains. Through all of this, Osborn followed the colonial logics which had similarly animated the action of Doyle's imperialist adventure—the journeying to, the mystifying, gendering, and colonizing of alien space, the return to the homeworld with the proof, the real thing. What I am speaking of is a highly entrenched set of cultural logics. These logics are reiterated in science and literature and are grounded in a blending of colonial, capitalist, and masculinist phantasies of endless expansion and the endless search for completeness. While revisable historically, the logics are echoed in the observations on wider practices of contemporary science in general as stated by anthropologist Sarah Franklin:

*Scientific pursuit is often described in terms of masculinity and adventure—as a domain of seminal breakthroughs, trail-blazing pioneers and uncharted territories. Such descriptions emphasize and valorize the enterprising activities of scientists as they busy about their colonizing practices.*<sup>43</sup>

But such romantic phantasies permeate much more in science than the outward performative actions of expeditionary, literary, and exhibitionary networks I have been describing. Phantasmaties reach equally into the conceptual substance of science—its practices of knowledge production and theorization.

Undergirding Doyle's lost world configurations were notions quite suggestive of Osborn's idiosyncratic yet historically consistent evolutionary theories. If it were possible to have a text as the key source for Doyle's science, ideology, and theory in the *Lost World*, it might very well be Osborn's *The Origin and Evolution of Life*. Upsetting that possibility

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<sup>43</sup> Franklin 1995b.



however, is the fact that publication of Doyle's novel predates Osborn's 1917 monograph by five years, which points to how very reciprocal the iterative practices of science and literature could be. Novels might just as readily and directly animate scientific theory as the reverse.<sup>44</sup> More to the point, however, is that the two practices are coordinated through complex circulations, performing more or less common senses of the natural.

Osborn's monograph bore a very telling subtitle which knitted well with the dynamic of energetic, manly interaction spun by Doyle: "On the action, reaction, and interaction of Energy". Energy, vitality, action, preservation, advancement, purity, climax—these were keywords in Osborn's lexicon, elements of a theory which fended off all manner of decadence otherwise threatening the orders of power in the world as Osborn lived it. In Osborn's evolutionary plan, progress was crucial, and energy and velocity were indicators of evolution working well, advancing much as in military maneuvers, as evident in this comment on the development of morphological characters in animalian anatomy:

*Although we may find that the course of evolution in one group of animals a character moves extremely slowly, it lags along, it is retarded, as if partly suffering from inertia, or perhaps, for a while it stops altogether; yet in another group we may find that the very same character is full of life and velocity, it is accelerated like the alert soldier in the regiment."*<sup>45</sup>

The remedy to fend off retardation, stagnation, inertia then, is velocity, alertness, individual agency. At base here, is a fear of senescence and obsolescence. Both Ronald Rainger and Donna Haraway have pointed out that Osborn's social anxiety lay in fears about the extinction of his clique of nineteenth century wealthy New York families. The finest exemplar of dead-endedness of an otherwise great "race" of powerful creatures within the scope of biological study in Osborn's time were dinosaurs. What better group of creatures to play one's anxieties through? Biogeographic past worlds could be held in strict opposition to contemporary worlds—as in the use of palaeobiogeographic maps in Osborn's

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<sup>44</sup> I take up this point in more detail in Chapter 4 "The Nexus in the Network"; see Squier 1999.

<sup>45</sup> Osborn 1917:279.





monograph. [Fig. 10, page following]<sup>46</sup> And certain large dinosaurs displaying what Osborn saw as expressions of outstanding energy achievement, could be turned into exceptional exemplars applicable equally well across the range of technical, popular, and exhibitionary venues to which Osborn had exceptional access.

In particular, Osborn transformed some of the ideas of his teacher Edward Drinker Cope. Cope had followed a rather exotic line of neo-Lamarckian thinking which Cope referred to as his theory of *kinetogenesis*—where continued use of certain parts of the body eventually led to the bodily acquisition and inheritance of functionally related characteristics, and hence, change over time—a positive use-it-and-gain-it corollary to the negative use-it-or-lose-it proposition. It was no wonder Osborn sent off his favoured artist, Charles Knight, to work with Osborn’s former teacher Cope. Knight was someone who readily incorporated and elaborated the over-determined phantasy that vigour expressed power, adaptiveness, and in short, survival. No better example of this is Knight’s image of two leaping Dryptosaurus which depicts of level of energetics not seen again in scientifically endorsed illustrations until the last three decades of the twentieth century. [Fig. 11, page following]<sup>47</sup> Here was someone who could visualize and virtually bring it to life. But Osborn elaborated this theory by a blending of both Darwinian and neo-Lamarckian points. He theorized that the environment constrained or guided morphological changes—akin to Darwin’s natural selection—and where action of the creature communicated back into the morphology of the animal, citing possible causes from hormones to “sub-psychic” behavioral cues.<sup>48</sup> He summed up his theory—which he would often refer to as a biological “law”<sup>49</sup>—in concise terms:

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<sup>46</sup> Figure 10, Source: Osborn 1917:217, “fig. 95. Theoretic World Environment in Lower Cretaceous Time.”

<sup>47</sup> Figure 11, Source: Czerkas 1987:40, Figure 1, original in American Museum of Natural History.

<sup>48</sup> Osborn 1917:147 (on psychic and sub-psychic cues), 223 (on hormones).

<sup>49</sup> Osborn 1917:285, introduction to “Appendix”.



Figure 10 (p. 63a)

Osborn's Mesozoic (Lower Cretaceous) Biogeography

Source: Osborn 1917:217, "Fig. 95. Theoretic World Environment in Lower Cretaceous Time."

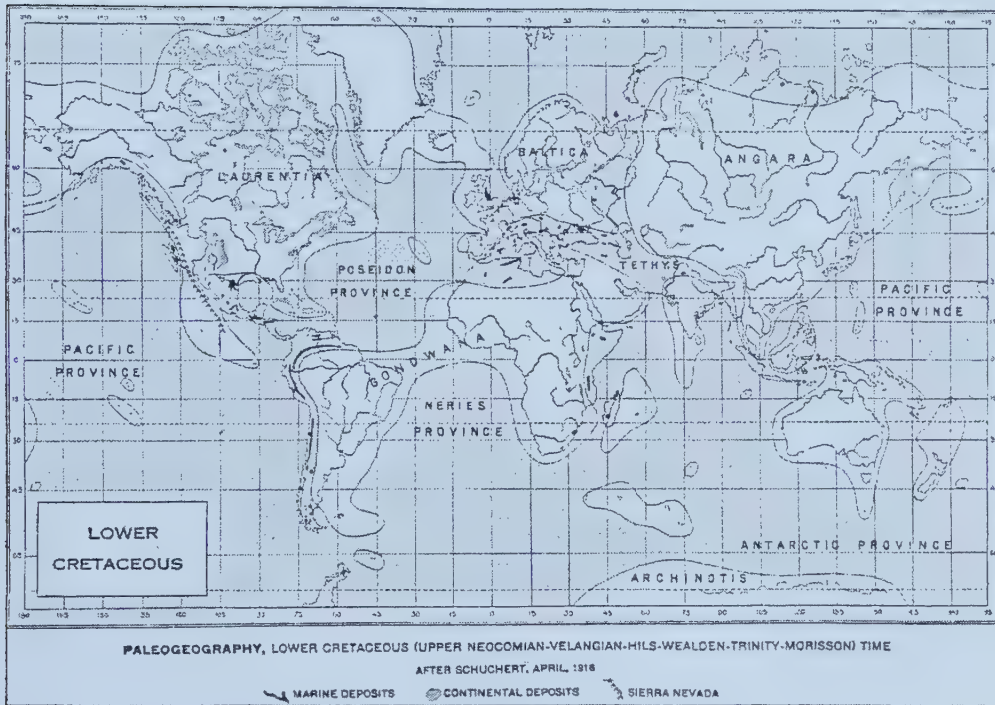


FIG. 95. THEORETIC WORLD ENVIRONMENT IN LOWER CRETACEOUS TIME.

The dominant period of the great sauropod dinosaurs. This shows the theoretic South Atlantic continent *Gondwana* connecting South America and Africa, and the Eurasiatic Mediterranean sea *Tethys*. Shortly afterward comes the rise of the modern flowering plants and the hardwood forests. The shaded patch over the existing region of Wyoming and Colorado is the flood-plain (Morrison) centre of the giant Sauropoda (see Fig. 97). After Schuchert, 1916.



**Figure 11** (p. 63b)  
**Leaping Dryptosaurus, Charles Knight Painting**  
Source: Czerkas 1987:40, Figure 1.







*Throughout we shall point out some of the more notable examples of the apparent operation of our fundamental biological principle of the action, reaction and interaction between the inorganic environment, the organism, the germ, and the life environment.*<sup>50</sup>

This concentrating on dinosaurs by a palaeomammalogist—which Osborn was—as exemplary figures of evolutionary decadence even served to help him model his theories in relation to the “germ plasm”, the unknown essential substance of organic reproduction. *Tyrannosaurus rex* was the ideal specimen and spectacle for Osborn, as visible proof of his theory, as example of “the total disparity between invisible energy and visible form”, or more to the point “...the microscopic [heredity germ]...as contrasted with the titanic beings which may rise out of it”.<sup>51</sup> His monumental, museum-mounted skeleton of *Tyrannosaurus*—which has indeed become an icon of nature’s menacing grandeur—holds place of precedence in the frontispiece of his volume, much as it did in the AMNH’s hall of vertebrate fossils. [Fig. 12, page following]<sup>52</sup>

The caption, full of triumphal verve, reads:

*Tyrannosaurus rex, the King of the Tyrant Saurians. The climax among carnivorous reptiles of a complex mechanism for the capture, storage, and release of energy. Contemporary with and destroyer of the large herbivorous dinosaurs.*<sup>53</sup>

Returning again to Doyle, recall his comments about dinosaur “stupidity” as a limit to on the adaptiveness of dinosaurs. In a cognate way, Osborn wrote:

*This “king of tyrant saurians” is in respect to speed, size, power, and ferocity the most destructive life engine which has ever evolved. The excessively small size of the brain, probably weighing less than a pound, which is less than 1/4000 of the estimated body weight, indicates that in animals mechanical evolution is quite independent of the evolution of their intelligence; in fact intelligence compensates for the absence of mechanical perfection.*<sup>54</sup>

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<sup>50</sup> Osborn 1917:23.

<sup>51</sup> Osborn 1917:11.

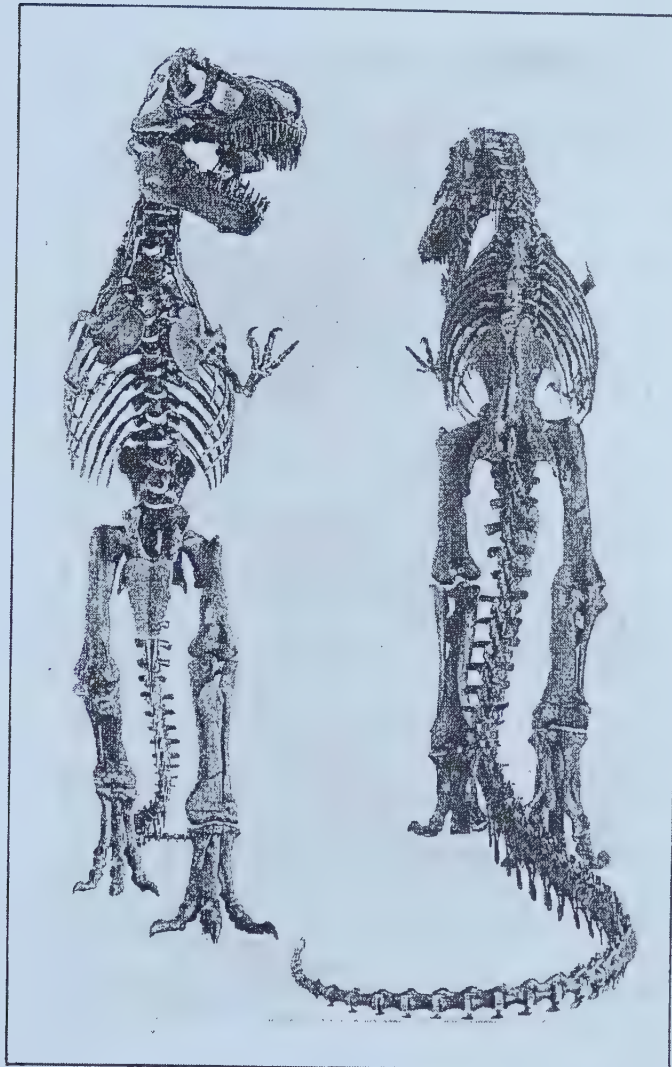
<sup>52</sup> Figure 12, Osborn’s “King of the Tyrant Saurians” Frontispiece “The climax among carnivorous reptiles of a complex for the capture, storage and release of energy”. Source: Osborn 1917: Frontispiece, “*Tyrannosaurus rex*, the king of the tyrant saurians”.

<sup>53</sup> Osborn 1917:iv.

<sup>54</sup> Osborn 1917:214.



**Figure 12** (p.64a)  
**Osborn's "King of the Tyrant Saurians" Frontispiece**  
Source: Osborn 1917: Frontispiece, "Tyrannosaurus rex, the king of the tyrant saurians".



*Tyrannosaurus rex*, THE KING OF THE TYRANT SAURIANS.  
The climax among carnivorous reptiles of a complex mechanism for the capture, storage, and release of energy. Contemporary with and destroyer of the large herbivorous dinosaurs. Compare p. 224.



For Osborn, the Mesozoic produced the ultimate being in *Tyrannosaurus*, a being he could then endow, through his description of the type specimen, with an appropriately monarchic name. According to Osborn, the “mechanical perfection” of *Tyrannosaurus* was inversely proportional to its intelligence, thus presenting an ideal counterpoint to his conceptions of mental and racial perfection which he assigned to the predominantly northwestern European genealogical stock from which he and many of his wealthy New England compatriots were derived. Osborn’s biological explanation for his ‘supreme beings’ of the Mesozoic could equally, by implication at least, be applied to and shore up his white supremacist position in the world. Indeed, the entirety of evolutionary history for Osborn became a sequenced history of the natural attainment of superior over inferior animalian forms. He continually focused on the most spectacular of taxa, from his attention to giant saurians, to his research on the enormous and bizarre Tertiary Brontotheres, to his extended work on the evolution of the Proboscideans leading up to the modern African elephant, which came to be the central display feature in his Hall of African Mammals at the AMNH.

All such evolutionary cases could add cumulative fact-like demonstrations to ground a culturally produced principle of natural causes for his racial position. He sought to articulate this position by lobbying successfully for the legislating of negative eugenics through established racial controls on immigration, and also, though unsuccessfully, for positive eugenics through “birth selection” practices. Such were the practices that would preserve what his powerful male cohort considered to be the finest expressions of humanity—those of the selectively traceable germlines of Osborn’s own cliques.<sup>55</sup> Rainger summarized

Osborn’s agenda:

*Well aware of the ways in which evolution had resulted in extinction in the animal kingdom, Osborn was concerned about the extirpation of the human race, or at least his own ethnic group. He maintained that contemporary life, which allowed for the mixing of*

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<sup>55</sup> For a concise review of Osborn’s racist commitments as they articulated with his social and scientific activities, see Rainger 1991:147-151.





*... races and provided the opportunity for women to move beyond their separate sphere, was in conflict with nature's laws and could result in degeneration.... By recognizing the importance of race and the power of heredity, restricting different races to their own domains of social and sexual activity, and allowing the New England stock to maintain its biological and social ascendancy, humanity and society could be preserved.*<sup>56</sup>

As with Doyle, racial and species purity—the great Mesozoic carnivores being a case in point—was to be gloried, while mixing was considered repugnant and retrograde, something to eliminate with steadfast conviction.

But to query further, if *Tyrannosaurus* was such a perfect “life engine” for Osborn, what possibly would bring on its extinction? For Osborn, the small-brain hypothesis was not fully adequate. In addition, he argued:

*...the arrest of evolution among the Reptilia appears to lie in the internal heredity-chromatin, i.e. to be due to a slowing down of physico-chemical interactions, to a reduced activity of the chemical messengers [i.e. hormones] which theoretically are among the causes of rapid evolution.*<sup>57</sup>

So, in theory at least for Osborn, surging hormones were also a source of surging evolution. For both Doyle and Osborn, intelligence was something that allowed man to better the great carnosaurus. For Osborn as well, the hidden, universal physico-chemical workings of the heredity germ and the chemical messengers fully articulated the process of potential human improvement.

As mentioned previously, Osborn further concretized in his theories the natural struggle for existence via the giant dueling carnivore-herbivore relation, again taking advantage of Charles Knight's talents to produce an array of conquering “offensive” carnivores pitted against “defensive” herbivores. The Mesozoic struggle for survival, the struggle to progress, expressed itself as kingly battle. Osborn played this as the repeatable pattern of

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<sup>56</sup> Rainger 1991:150.

<sup>57</sup> Osborn 1917:223.



nature—the Mesozoic now serving as a mimetic time-space milieu for performing a comparison of his cultured sense of ancient nature against that of contemporary nature:

*Thus in the balance between the reptilian carnivora and herbivora we find a complete protophase of the more recent balance between the mammalian carnivora and herbivora.*<sup>58</sup>

To cap his tale of ascendancy to superiority, Osborn even assigned the same language to humans as he had done for *Tyrannosaurus*. Where in the frontispiece he noted his tyrant king had been “destroyer of the large herbivorous dinosaurs”, deep into the text he further noted that the Pleistocene extinctions were caused “...by man, who through the invention of tools...became the destroyer of creation”.<sup>59</sup> Weapons and tools—like tooth and claw—were the source for species superiority. The end of one ultimate power gave rise in due course to its superior.

Osborn marked the opening of his volume with the image of the “titanic being” *Tyrannosaurus*. Reciprocally, he saw fit to close his book with an invitation to the future study of how to manipulate “the microscopic” heredity germ, borrowing on the historical authority of Francis Bacon:

*We may well conclude with the dictum of Francis Bacon, one of the first natural philosophers to counsel experiment, who in his Novum Organum (1620) shows that living objects are well adapted to experimental work and points out that it is possible for man to produce variations experimentally.*

Osborn then quoted from Bacon statements that could be taken as readily as an anthem for eugenics in the early twentieth century or, indeed, for biotechnological experimentation in the late twentieth century:

*“...it would be very difficult to generate new species, but less so to vary known species, and thus produce many rare and unusual results. The passage from the miracles of nature to those of art is easy for if nature be once seized in her variations, and the case be manifest, it will be easy to lead her by art to such deviation as she at first led to by chance;*

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<sup>58</sup> Osborn 1917:225.

<sup>59</sup> Osborn 1917:238.



*and not only to that but others, since deviation on the one side lead and open the way to others in every direction.”*<sup>60</sup>

Here, at the end of his work on the evolution of vertebrates was Osborn’s cultured rationale for redirecting evolution from a founding figure of modern rationality itself. This could stand as an ideal bridging point for those who agreed with his anxious, racist ambitions to preserve, insulate, and improve his own kind of rugged, American, self-made man. For Osborn, there was indeed “a racial soul as well as a racial mind, a racial system of morals, a racial anatomy”,<sup>61</sup> and every living kind, from “monad to man” in every otherworld, lost or living, proved it so. Neither Arthur Conan Doyle, nor Professor Challenger himself, could have written it better.

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<sup>60</sup> Osborn 1917:283-4.

<sup>61</sup> Osborn 1924:238.





# The Nexus in the Network

## Hunting Big Game in Habitat Dioramas and “The Age of the Dinosaurs”

### Embodying and Extending Performative Relations

Having set up the parallel logics and phantasies animating Doyle’s lost world and Osborn’s Mesozoic, it is now possible to discuss the more thorough-going performative dimensions of the two cases. I start by summarizing the formalisms which have precipitated through these intertwined actions.

To begin with, the great carnivorous dinosaurs *Tyrannosaurus*, *Megalosaurus*, and *Allosaurus* came into massive public being within both Doyle’s and Osborn’s fictive/factual worlds as the ideal foes and counterparts to humanity — yet altogether on another, lower plain of evolutionary attainment, even though these creatures within their own time/space milieus represented the ultimate expression of the evolutionary order. Not unlike what they believed were essential in the character of the greatest of great white European and American men of their esteem, Doyle’s and Osborn’s performative reconstructions of these over-signifying dinosaurs displayed vigour, the ability to conquer, to be the tyrant king. In this, the dinosaurs themselves resembled the characters of Doyle’s Challenger and Roxton, Osborn’s Andrews and Akeley. Osborn and Doyle could directly enact these potentialities, but an even more potent means of phantasmatic extension was available to them. Extending their reach via their allied colleagues, they could effectively knead culture through nature, and nature



through culture. That reach was extended and further secured through a complex of mediations and productions, attaining ever more widely distributed performances of their phantasies.

In their accounts, what the great saurians lacked was what these ideal men of science and adventure had obtained: “brain-power”, intelligence, and the inherited, physico-chemical capacity to permit them to adapt and evolve further. The corrective for Osborn lay in heightened intelligence so long as the biological determinants for such improvement were met within the mechanism of the “heredity-chromatin”. The moral lesson in Osborn’s supremacist natural order of things was to win the struggle once and for all. It was to go beyond *Tyrannosaurus*, the former destroyer of creation above all other “races” of dinosaurs, and instead to become the new destroyer of creation, the greatest of great hunters.

Osborn’s masculine sportsmen’s phantasies were entirely in the spirit of his cherished Boone and Crockett club, whose first and foremost qualification for membership demanded:

Article II—Qualifications for Membership

A. No one shall be eligible for Regular membership who shall not have killed with the rifle in fair chase, at least one adult male individual of each of three of the various species of American large game...<sup>1</sup>

The largest of large game—and nominally signified to be an “adult male”—was *Tyrannosaurus rex*. Exotic large game hunting is also one of the legacies and markers of colonialism. Given the sportsmen’s attitudes of Doyle and Osborn and the extent of their public reach in cultural discourses of evolutionary natures, it is little wonder that myriad popular and semi-technical books and articles on dinosaurs published since the early twentieth century have used the linguistic and performative logics of “big game” hunting. A small sample of titles include Charles H. Sternberg’s *Hunting Dinosaurs on the Red Deer River* (1917), Barnum Brown’s “Hunting Big Game of Other Days” (1919—the earliest article on dinosaurs published by *National Geographic Magazine*), Charles Gilmore’s

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<sup>1</sup> Trefethen 1961:258.



“Hunting Dinosaurs in Montana” (1929)<sup>2</sup>, Loris Russell’s *Dinosaur Hunting in Western Canada* (1967), Zophia Kielan-Jaworowska’s *Hunting for Dinosaurs* (1969), David Spalding’s *Dinosaur Hunters* (1993), and Louis Psihoyos’ *Hunting Dinosaurs* (1994).

The metaphors of the sporting life as an animating performative logic for palaeontology was uttered concisely by lost world enthusiast and evolutionary theorist George Gaylord Simpson: “The fossil hunter does not kill; he resurrects. And the result of his sport is to add to the sum of human pleasure and to the treasures of human knowledge.”<sup>3</sup> This was also recalled in Ray Lankester’s annual Christmas lecture for children of privileged patrons of the British Museum of Natural History. His training recommendations for young people, echoing the scouting principles of Baden-Powell, paralleling the hunting expeditionism of Doyle and Osborn while interpolating those logics within the journey narrative of visiting the museum itself:

*To learn more than the few facts which I have so briefly stated in these pages, the reader should visit many times the Natural History Museum, see the actual specimens, and by the aid of the illustrated guide-books get to know more details about them. And, if he or she have the chance and can go and hunt in some of the quarries or cliffs which are so often full of fossils, an endless delight and a health-giving pursuit is the prospect before him or her. Fossil-hunting with the hammer and chisel and a bag to be laden with specimens, is splendid exercise, and, if skillfully conducted, an exciting form of sport.*<sup>4</sup>

Through the disciplining, health-promoting journey from doorstep to school to museum to field—and ultimately into the phantasmatic time/spaces of the fossil past—one could in this much more passive way obtain specimens of the biggest, rarest, and most monstrous of forms of life. Moreover, this action would yet preserve the imperialist, colonialist sporting spirit of conquest. Lankester added:

*...there is always the chance—a good sportsman’s chance—of finding “something new”.*

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<sup>2</sup> Gilmore 1929:7-12.

<sup>3</sup> Quoted in Rexer & Klein 1995:170.

<sup>4</sup> Lankester 1905:294-5.





Haraway has demonstrated the sort of great white hunter motivations and tropes which animated the making of mammal dioramas at the AMNH—most notably the gorilla habitat group featuring the taxidermically prepared male silverback known as the “Giant of Karisimbi”. The same tropes were quite easily extended into the languages and practices of palaeontological work by Doyle and especially Osborn, by their supporting cohort and by so many to follow. Whereas, in Haraway’s analysis, the hunted-down and taxidermically prepared “primal ape in the jungle is the dopplegänger and mirror to civilized white manhood in the city”<sup>5</sup>, the mounted skeletons of giant carnivorous dinosaurs were the ultimate enemy alter-beings. Moreover, their existence in the most remote places in time—hidden by geological sediment—invited performatively and allegorically an even more masculine journey of discovery and conquest. This was a journey, however, where the dangers of the hunt were that much more phantasmatic, as the terrible creatures were already quite dead, even for the palaeontological collector. As exemplified by Doyle’s Malone in the act of his passage into the glory of heroic manhood, boys were supposed to become men by taking up such a journey. At the same time, men could retain their boyhood in a practice of fraternal bonding in nature’s wondrous otherworlds of difference. These were phantasies explicitly signaled in Doyle’s epigraph for *The Lost World*:

*I have wrought my simple plan...If I give one hour of joy...To the boy who’s half a man... Or the man who’s half a boy.* <sup>6</sup>

Noting this epigraph, Joseph Kestner remarked on its articulations with the masculinist, colonial outdoor disciplining actions of the expanding scouting movement in the British Empire and America:

*Doyle’s epigraph establishes, more significantly, the symbiosis of gender modeling between men and boys which was the fundamental premise of Baden-Powell’s scouting movement, with its close association of young men and scoutmasters. The near affiliation between acts of ‘scouting’ or ‘tracking’ and ‘deduction’ in detective narratives,*

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<sup>5</sup> Haraway 1997:235; also see Haraway 1989 [1984].

<sup>6</sup> Doyle 1994 (1912):epigraph page



*underscored by Baden-Powell in Scouting for Boys, reveals that this mode of popular narrative served to script masculine gender.”*<sup>7</sup>

Haraway recognizes the parallel call to manly passage through nature in the Roosevelt Memorial atrium of the AMNH. Its *bas relief* friezes contain quotations from Roosevelt which utter all the interests Henry Fairfield Osborn had aspired to as the institution’s leader. Referring to these reliefs, and noting a sort of all-American, one-way passage from boyhood to manhood through the struggle with powerful forces of nature, Haraway samples and comments upon Roosevelt’s words:

*The visitor—necessarily a white boy in moral state, no matter what accidents of biology or social gender and race might have pertained prior to the Museum excursion—progresses through Youth: “I want to see you game boys [sic]...and gentle and tender...Courage, hard work, self mastery, and intelligent effort are essential to a successful life.” .....The next stage is Manhood: “Only those are fit to live who do not fear to die and none are fit to die who have shrunk from the joy of life and the duty of life.”*<sup>8</sup>

White male rites of passage, sportsmanship, and struggle were the credo for both Doyle and Osborn, and so many influential men of their time. In turn, they articulated this so thoroughly with the cultural networks of their parallel trans-Atlantic social moment as to win enormous audiences to their phantasies. Their literary-scientific connective tissue was the same—the performative spaces of nature built, visited, conquered, and discovered by this extended community of living, once-living, and imaginary men. There was no conspiracy here, only the predominating conditions of culturing nature in which Doyle and Osborn clearly shared. Without any necessary coordination or communication between the two, Osborn and Doyle performed their cultured knowing in an everyday way, and then extended that culture tremendously: through the mass publication of their literary and technical works; through the mobilizing of their cohort; through enormously popular museum displays;

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<sup>7</sup> Kestner 1997:6.

<sup>8</sup> Haraway 1989 [1984]:27.



through public lectures, media stories. This incessant stream of performative citations reproduced and mimicked their performances and productions over the remaining decades of the twentieth century.

A common feature of the practices of both Doyle and Osborn was their anxiety-driven intimacy with the difference-making practices of imperialism and colonialism. In the blending of all these actions, the time/space of humans and animals was animated and delineated along hierarchic lines of difference, including species, gender, and racial lines. By these precipitations there emerged the doubled evolutionary science-adventure landscapes known as the lost world and the Mesozoic. One effect was the easy translation of palaeontology into lost world travel performance—not to mention forensic detection and big game hunting tale. This romantic, imperial, frontier attitude continues today at the AMNH, stated no more explicitly than by the institution's president Ellen Futter in 1995. She wrote: "Expeditions are the embodiment of this Museum's mission of discovery and understanding, throughout its illustrious past and in its continuing role at the forefront of scientific research." She goes on to state the fundamental rationale for this zealous mission, adding the same sort of romantic mystification in which Doyle and Osborn reveled, "expeditions...reveal the wonders and mysteries of life."<sup>9</sup>

Harvard sociobiologist Edward O. Wilson wrote the Foreword to the AMNH volume, adding further to Futter's vision:

*Has the expeditionary spirit so well exemplified in the AMNH vanished? No, and I assure you it never will...the exploration of the world continues as never before, in the field and in the laboratory. The promise of a new golden age is implicit in the task this great museum has set itself.*<sup>10</sup>

One might think that dinosaurs and palaeontology have nothing to do with practices of domination, colonialism, racism, misogyny and oppression, that they are in some apolitical

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<sup>9</sup> Rexer and Klein 1995:18.

<sup>10</sup> Rexer and Klein 1995:19-20.





sense, simply ‘wonderful’ beings (though even ‘wonder’ has its political valences<sup>11</sup>).

However, the production of a figure like the Mesozoic/Lost World—inhabitable only by a select group—installs a performative apparatus which readily launches narratives and practices which have long been associated with colonialism and imperialism. In western technoindustrial societies, natural-cultural organizing apparatuses of this sort continue to have tremendous purchase.

The chronotope of the Mesozoic/Lost World is such an apparatus which knits together the expert and the vernacular, science and society, specimen and spectacle. The effectiveness of that binding may help explain both how scientific production can fall into numbing repetitiveness, and how the animating narratives may so effectively come to be accepted as authoritative when circulated as public culture. The non-human geography of the Mesozoic/Lost World has become ever-more concrete through performative reiteration. Even after the individual human figures have passed into historical memory, the Mesozoic/Lost World remains as a culturally-embedded, complexly describable, circumscribed domain of nature. It bears in its very constitution remnants of its historically-contingent interests—including those of Doyle and Osborn who contributed so very much to its fashioning.

## A Natural/Cultural Nexus and its Networks

Reflection on these early twentieth century *inter-performative* relations of Doyle and Osborn indicates how phantasmatizations materialize into entities, embedding themselves in both the public and technical actions of science. In this instance, “imagining” (verb) in a cognitive

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<sup>11</sup> Greenblatt 1991.



sense and “imaginings” (noun, plural) in the material sense turn out to be quite continuous and fluid. Furthermore, the phantasmatic quality of Osborn’s theory-building indicates the extent to which his science was shot through with matter which many typically think are solely of the public or political imaginings. Scientists work hard to bracket such matter out, but phantasies remain in science *de facto*, however plastic they may be, and however vigorously people deny their presence. I addressed aspects of this bracketing work in Chapter Two. At this point, however, I will continue to consolidate what I have presented so far on the dynamics of the relationalities from the Doyle/Osborn nexus—including a discussion of what I refer to as “nexus” and “network”.

## The Literary and the Scientific

*We inhabit these narratives, and they inhabit us. The figures and the stories of these places haunt us, literally.*

-D. Haraway <sup>12</sup>

What we see in the mutual mimetic world-making actions of Doyle and Osborn is the mobilizing of scientific practice in literary modes as well as the mobilizing of literature according to scientific modes of practice. What I have been pressing upon so far, is how phantasmatic identifications move readily between and among these seemingly separate domains of socio-cultural practice, and indeed, between what is divided up and then counts as imaginary and real. In particular, I’ve taken up the enmeshing of literary and technical-scientific expressions by means of the interleaved, world-making figure of the Mesozoic/Lost World.

Feminist science studies scholar Susan Squier recently examined the networked relation of literary and scientific practices in the 1990s.<sup>13</sup> In a manner similar to what I present here,

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<sup>12</sup> Haraway 1998:205.

<sup>13</sup> Squier 1999.



Squier attempted to move beyond conventional practices of feminist, comparative literary analysis, which have tended to focus on locating literary work within socio-historical “contexts”. Squier demonstrated that these latter approaches miss the point that the literary work and its context are products of heterogeneous collectivities of human and non-human entities. In what may be seen as a contemporary counter-point to the early twentieth century Doyle/Osborn correspondences which I have been discussing, Squier takes up the “simultaneous publication in 1992 of two texts dealing with a global decline in sperm potency, P.D. James’s *The Children of Men* and Elisabeth Carlsen’s “Evidence for Decreasing Quality of Semen during the Past 50 years”—the former being a novel, the latter a technical article by a reputed endocrinologist in the *British Medical Journal*.<sup>14</sup>

The correspondence which Squier draws with male-centred anxieties in her simultaneous cases has some astonishing correlations with the Doyle/Osborn case almost a century earlier. However, the female authorship of the publications Squier discusses indicate significant social turns over that period. The cadres of male authors buttressing their social networks against imagined threats through acts of bravado are gradually being decentred. Now, in contrast, women authors are calling attention to the specific underpinnings and consequent expressions of male-centred bodily anxiety in relation to human reproduction.

In her analysis of the James and Carlsen texts, Squier recognizes that these simultaneous literary and technical performances are much more than “remarkable coincidences”, as others tend to suggest. She points out that speaking of “coincidence” suggests that “literature and science are stable and discrete categories”. Instead, taking guidance from Latour’s “seven rules of method”, she argues, there is a network of human and non-human actions which connect such temporally, performatively coinciding literary and scientific productions.<sup>15</sup> Her purpose in doing this is to demonstrate that human reproduction is a “highly charged

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<sup>14</sup> Squier 1999:132-3.

<sup>15</sup> Latour 1987.





zone” of cultural traffic which conjoins literary and scientific practices among many others. She suggests that the case offers an opportunity for practitioners of feminist science studies to “rethink...[a] primary genre-bound division between literature and science.”<sup>16</sup>, and consequently, to develop models that “attend more fully” to the trafficking between the two.

Regarding such traffic, it was straightforward enough to show that Doyle had learned friends in common with Osborn—British Museum zoologist Ray Lankester for instance. But more than a social network of transmission, what the bounded lost world and its counterpart the Mesozoic have presented is a cultural and visionary trading apparatus, around and through which everyday, habitual performances of the manly, the imperial, the capitalist, the expansionist came to be enacted. Not only do such phantasms infuse and circulate in the figure, but the figure itself also travels through public cultural and technical terrain, residing in the very materialized outcomes—from publications to display architecture, from technical diagrams to popular films. Notably, Osborn would see to the development of a fossil reptile gallery which portrayed his order of knowing, and an array of collaborative Knight-Osborn murals and paintings to further concretize his vision, a vision that modified upon and developed out of antecedent historical flows.

In the final analysis, Osborn articulated nature through a Doyle-like literary imaginary by folding it into the scientific actions, material practices, and rhetoric of the day. Doyle’s tale was of the phantastic adventuring visible in networks of palaeontological enterprises like those of Osborn’s network in New York at the AMNH, or those of Lankester in London at the British Museum (Natural History). Osborn’s institutional apparatus—consisting of human and non-human actors—offered him many locales to orchestrate (in a loose sense) the performative actions of the Mesozoic, fossil collectors, plus a titanic monster to bring home his ultimate, self-centred, anxiety-staying moral lesson. *Tyrannosaurus rex*—the specimen, the name, and its Mesozoic otherworld were equal to the job.

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<sup>16</sup> Squier 1999:144.



## The Nexus and The Network

The Mesozoic/Lost World is an exemplary case of a natural/cultural *nexus* within a heterogeneous *network* of social, technical, and material action. Wherever and whenever it is mobilized, it bounds in, fuses together, and organizes what otherwise counts as the imaginary and the material, the cultural and the natural, the phantasmatic and the real. It is literally a *nexus*. English language dictionaries commonly define *nexus* in the doubled sense I am suggesting here:

*1. a means of connection; tie; link. 2. a connected series or group.*<sup>17</sup>

In other words, the Mesozoic/Lost World is both a connecting point (singular), but it is also distributed across a network, appearing at and so connecting many points (plural). In both ways, and because it is so very well distributed in this manner, it builds upon and stabilizes a well-articulated array of human and non-human resources.<sup>18</sup>

The Mesozoic is a natural/cultural, public/scientific nexus. Its well-contained and monstrous non-human saurians have held an exceptionally influential position—often designated by the subordinate Triassic, Jurassic, Cretaceous periods—in managing the production of ancient forms of life simultaneously as specimens and spectacles. In this sense, it operates simultaneously across scientific and public milieus.

For both Doyle and Osborn, the phantasmatic which was specifically articulated *with and through* the Mesozoic/Lost World geography was the journeying of the romantic adventurer

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<sup>17</sup> Stein (ed.) 1983.

<sup>18</sup> Elsewhere (Noble, in press, a) - “Politics, Gender, and Worldly Primatology: The Goodall-Fossey Nexus”), in reference to the public/scientific actions associated with the primatology of Jane Goodall and Dian Fossey, I have referred to a “nexus of mediations”, which oriented moreso to the second dictionary gloss of “nexus”, being a series of connections. “Nexus” refers to the collectivity of interacting agents and includes the primatologists, the apes, the instruments of scientific practice (e.g. vehicles, binoculars, notebooks, money, etc.), the local environmental elements, field assistants, camps, film crews, and so on. “Mediation” is what takes place in each engagement between two or more of these agents.”



and big game hunter into an exotic wilderness made available for colonization, manly attainment, and proof of the rationalist project. In this way, romanticism and enlightenment are also reconciled by this figure. This became the in-built narrative of the figure, the story that made it potent. As noted in the opening discussion of this chapter, these phantasies came to be performed and embodied in the masculine actions of living and literary figures alike. Those actions then articulated with and increased the materialization of the figure—most notably through the production of imagery, narrative accounts, museum displays, exhibited skeletal mounts, biogeographic maps, and so forth. While the full materialization of the Mesozoic would not be achievable, all these networked actions resulted in the coalescence of an integrated place in time. As it became more real, the Mesozoic/Lost World provided a potent visualizing, story-telling technology, and it converged around the visions and stories of its most influential, designing agents: Osborn and Doyle as predominant movers of these heterogeneous networks in action. In this forceful, heterogeneous manner, the lost world+mesozoic was the *performative nexus* of a widely distributed *performative network*. Recalling Judith Butler’s point once more, in becoming so widely distributed as a performative nexus, the very theatricality of the action is obscured, and “it conceals or dissimulates the conventions of which it is a repetition”.<sup>19</sup>

### The Performativity of Akeley’s Gorilla Diorama: Lessons from a Complementary Nexus

In laying out the inter-working of world-making, narrative, and other performative practices of Doyle and Osborn, I have been attempting to fill-in suggestively and directly, some of the visions linking the actions, and the actions linking the visions, of these two men. These discussions also extend on some of the very salient points about the workings

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<sup>19</sup> Butler 1993:12-13.





of cultured nature—or “nature in the making”—which Donna Haraway has discussed in her various writings on the American Museum of Natural History, especially in relation to the collecting expeditions and consequent diorama display and taxidermic work led by the museum’s Carl Akeley. Akeley, like Barnum Brown, Charles Knight, and Roy Chapman Andrews, found a friendly environment in the museum under Osborn’s aegis. Akeley’s most enduring legacy has been the AMNH’s African Hall, constructed between 1926 and its opening in 1936, consisting of an array of highly-crafted, taxidermically exacting, dioramic habitat groups.

Haraway’s descriptions concentrate on the gorilla group with its erect-standing, chest-beating silverback rising over the four other animals, together posed as “a natural family of close human relatives”, and set against a painted “Eden”-like pristine landscape view of the mountains of the Lake Kivu area of what was formerly Belgian Central Africa.<sup>20</sup> From here Haraway demonstrates the complex manner in which the masculinist networks of the AMNH conformed this particular diorama into a ‘natural’ scene. She elaborates how that scene is readable as an effective “looking-glass” for its presumed, idealized audience, which she referred to as a “white boy in moral state”—pushing appropriately on the literal, communicative intent of the display. A crucial point in Haraway’s analysis of the representational realism of the diorama, was to emphasize how nature could be presented as given, as already made, total, and indeed as healthy, pure, untouched, and properly ordered. This sort of selective envisioning of wildness and purity was emphasized by museum officials and American policy makers alike as part of the project of promoting the preservation of wilderness. Haraway, tracked the philosophical points of Osborn, Roosevelt, and indeed of the Boone and Crockett and Sierra Clubs, and the New York Zoological Society in the early part of the century, and noted the prevailing commitment that,

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<sup>20</sup> Haraway 1984 [1989]:31.



“Conservation was a policy to preserve resources, not only for industry, but also for moral formation, for the achievement of manhood.”<sup>21</sup>

In her extensive study of the habitat diorama, art historian Karen Wonders, while eliding the political-economic dimensions and eugenics association which Haraway and Rainger both considered, affirmed this political role for the diorama as agent for American conservation ethics:

*The perception that wild nature was threatened by the advance of civilization provided natural history museums with an urgent mission. Not only must they collect and preserve specimens of certain soon-to-be-extinct wildlife species, but they must also provide a document of the wilderness landscape itself as it had once existed in its pristine state. Habitat dioramas served both these environmentalist purposes and in addition entertained the public by conjuring up illusionistic scenery that was an artistic tour de force.*<sup>22</sup>

Wonders also details the leading role of the AMNH in the development of the habitat diorama as a major genre of nature presentation, noting in particular the role of Henry Fairfield Osborn:

*The romantic idea that habitat dioramas preserved for posterity a view of the primordial wilderness as it had once existed before being ravaged by man was particularly strong at the AMNH. ...Henry Fairfield Osborn, president of the board of trustees from 1908 to 1933...was committed to increasing the museum's role in public education. He strongly believed that: "The new definition of the purpose of a museum is 'To bring a vision of the world to those who otherwise can never see it.'" Osborn was an active supporter of the habitat diorama and it was largely due to his influence that the AMNH became the world's leading proponent of such displays.*<sup>23</sup>

For her discussion, Wonders described habitat dioramas in a spare manner, as “natural history scenarios which typically contain mounted zoological specimens arranged in a foreground that replicates their native surroundings in the wild”.<sup>24</sup> Wonders’ faith in the

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<sup>21</sup> Haraway 1984 [1989]:55. Also see Rainger 117-122.

<sup>22</sup> Wonders 1993:148.

<sup>23</sup> Wonders 1993:170.

<sup>24</sup> Wonders 1993:9.



diorama as replicator of reality is reinforced by her remarks on how she sees the generic visitors engaging with such displays:

*In a diorama, the museum visitor can engage in a direct perception of the scene without the interference of technical devices that mediate and translate reality, predetermining both the pace and content of the information that is communicated.*<sup>25</sup>

What Wonders does not take into account here, is the very simple matter that the “direct perception” by the visitor is indeed through a “technical device”. The diorama itself has been crafted and is already mediating and translating something other than a simple “reality”. As with all dioramas, Akeley’s is quite *predetermined*, located ‘between’ the very particular human and non-human network of the AMNH which brought it into being, and the ambling visitor. It is a barrier and mediation made by blending selected specimens in selective arrangements with scene painting to look like a window and so, also, to become a spectacle. It is another explicit case of a *nexus* within what I have termed the specimen-spectacle complex. By appearing as naturalistic and real as possible, it does the work of effectively hiding the hierarchies of phantasmatic and performative arbitration that led to its selective construction in the first place: the legacies of Roosevelt’s sportsman’s wonderland, Osborn’s eugenics, Akeley’s adventures of conquest, and so forth. Wonders is correct in noting the importance of environmentalist values and of taxidermic traditions as informing the outcome—but in a very particular way, those resources were mobilized in turn with the other interests of which Haraway has written in her essays.

In contrast to Wonders’ faith in the relative innocence of representational work, Haraway has described the complex tissue of practices and material circulations which came to produce outcomes such as the Akeley dioramas:

*Behind the dioramic re-creation of nature lies an elaborate world of practice. The social and technical apparatus of the colonial African scientific safari and the race-, class-, and gender-stratified labor systems of urban museum construction organized hundreds of people over three continents and two decades to make this natural scene possible. To*

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<sup>25</sup> Wonders 1993:223.





*emerge intact, reconstructed nature required all the resources of advanced guns, patented cameras, transoceanic travel, food preservation, railroads, colonial bureaucratic authority, large capital accumulations, philanthropic institutions, and much more. The technological production of a culturally specific nature could hardly be more literal. The intense realism of the diorama was an epistemological, technological, political and person-experiential achievement. Natural order was simply there, indisputable, luminous. Kinship was secure in the purity of the achieved vision.*<sup>26</sup>

Likewise, I have sought to show that the tissue of natural-cultural circulation extends far beyond the direct practices of the institutional agents, and reaches across the encompassing material and cultural terrain into fictional or quasi-fictional literature—*and back again*—affirming the points which Susan Squier has made. The case for the Mesozoic/Lost World as mobile cultural production apparatus is much the same as that for dioramas.

So, to Haraway's list of resources invested in the making of museum-displayed nature, I would add other objects, subjects, practices, and "devices" which or whom were mobilized, produced, and performatively animated in the network of actions: fossil specimens, alphanumeric labeling systems, guidebooks on Linnaean rules of nomenclature, artists and illustrators, collectors, theorists, publics, public transit,<sup>27</sup> politicians, skeletal mounting techniques, that vaguely imagined substance called the "heredity germ", security guards, insurance policies. All of these constituents of the network impinge on the outcomes, whether followed toward the scientific theories, toward the public presentation, toward philanthropic funding regimes, or in any other direction the network leads. Doyle's narrative gestured to many of the resources of this combined list one way or another, thereby approximating the action of museological field science in practices which, *vice versa*, approximated Doyle's narrative. All of the stuff which supposedly "unbiased" science would ask to be bracketed out as extraneous scenarios, phantasies, ideologies, interests,

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<sup>26</sup> Haraway 1997:236.

<sup>27</sup> I have discussed the infrastructural ties between public museums, expositions, and local railways and transit systems in relation to London's Crystal Palace Park, and the Kensington museums. Noble 1994, 1997.



externalities—indeed as “biases”—remain fully and seamlessly in the fabric of both. Here are particular forms of natural kinship agreeing completely with and supporting the coinciding (as opposed to *coincidental*) practices of imperialist, masculinist, racist adventure-romancing.

To bring this all back to the Mesozoic/Lost World nexus, it becomes apparent that the diorama does similar sorts of chronotopical work as the bounded saurian world in science and literature. Namely, it takes the lost, remote, forgotten, threatened, desired, exotic, exceptional, and proceeds to build it into a literal, literary geography meant to reconstitute and so formulate what should be taken as ‘real’, fixed, ‘naturally’ right. The viewer engaging this cryptogeography (i.e. lost geography, and a geography that conceals) is intended to be drawn into its web of nostalgia, sentiment, and wonder—indeed into its virtualized truth and purity. For all intents and purposes, this is nature, as good or even better than it gets. When one stops to consider the histories, interests, and indeed the productive matter that are hidden within all this—not the least of which is the labour obscured by the aura of this remarkable fetish of factualized nature<sup>28</sup>—then a more richly contoured cultural and political analysis of the materializations becomes possible.

### *From Social to Natural-Cultural Studies of Science*

At this juncture, I’d like to consider some recent critical responses to Haraway’s analyses of the AMNH and the Akeley African Hall displays—polemics which in the end serve to reinforce not detract from her studies. In a 1997 *Lingua Franca* article, sociologist Michael Schudson expressed his concern over the rise of “cultural studies” against what he sees as

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<sup>28</sup> Here, I refer both to Benjamin’s formulations (1936), and to Latour’s recent discussions of the “factish” (1999:266-92). I discuss these points on the blending of fetishes and facts through dinosaurs in the concluding chapter (Ch.13) of this volume.



the more rigorous approaches of mainstream, disciplinary sociology. In particular, Schudson took issue with Haraway's 1984 essay "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden". His critique was based on the mistaken view that the essay only addressed the AMNH African Hall as a "readable text" and a "series of synecdoches" (part for whole relations) which ultimately stood, to quote Schudson quoting Haraway, as "a tale of the commerce of power and knowledge in white and male supremacist monopoly capital."<sup>29</sup> While such statements may be extracted from Haraway to appear as "wooden and formulaic abstractions" as Schudson is inclined to call them, his reading misses the more extensive invocations which Haraway makes in the article and subsequently in a 1997 essay, both of which went well beyond simple textual or discursive analysis.<sup>30</sup> In the terminology I adopt, what Haraway also indicated was a phantasmatic order which suffused and significantly shaped institutional practices and physical productions at the AMNH.

Schudson failed to recognize what materialized through the intertwined practices of: (i) natural history collecting expeditions and, (ii) the translation work in the production of dioramas which heterogeneously constitute culture, nature, and society in the encompassing practice of the museum. Haraway's point was not some simplistic notion about ideological biases. Rather, it was about the complex interplay between people such as Akeley or Osborn and their network of actions, which included the very technical and material entities which they engaged and produced. These, in turn, impinged on what might better be seen to be the complex outcome referred to in that most slippery of words, "culture".<sup>31</sup> Indeed, historian of science Robert M. Young, an acknowledged theorist on ideology and science, specifically praised Haraway's *Primate Visions*, of which her "Teddy Bear Patriarchy" article was a part. Young lauded it for the very manner in which it refused to treat ideology as something

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<sup>29</sup> Schudson 1997.

<sup>30</sup> cf. Haraway 1989[1984], and 1997:235-7.

<sup>31</sup> Williams 1985, in his entry for the keyword "culture", notes it as one of the most complex words in the English language.





outside—a context or a bias—of the materials and practices of science as culture. The conclusion Young drew reads:

*...if science IS culture, and if culture is not to be ontologically and epistemologically privileged (the way the ‘science of ideas’ was privileged by the French Ideologues), then the concept of ideology no longer has a privileged or scandalous conceptual space to occupy.*<sup>32</sup>

There are advantages of such an anthropological recognition of science as culture—or in Latour’s terminology, science as “nature/culture”, or in Haraway’s as “natureculture (oneword)”.<sup>33</sup> It recognizes that a complex, culturally-extensive, culturally susceptible apparatus is in operation, an apparatus that is fully constituted through engagements with what counts as natural—and indeed reconstitutes that outcome in the process. That apparatus includes all manner of cultured entities with attendant agencies, both human and non-human, built and found—all of which are historically contingent so may change or remain relatively stable.

*Culture* in this sense is not some “thing” which may be particularly circumscribed or discrete, but instead can be taken as a fully mutable, mobile, and yet powerfully iterative and reiterative set of relationalities. By *relationality* I mean the multiplicity of possible ways of enacting or making relations between humans and humans, humans and non-humans, etc.. Culture, as relation-making, is certainly not some “thing” *outside* nature—although that is how it has come to be bracketed in modern practices.<sup>34</sup> *Science*, in the practical action I discuss, becomes a manner of performative culturing effected by human and non-human entities repeatedly engaging and modifying what counts as the natural.

*Performative nexi*, such as the Akeley diorama or the Mesozoic/Lost World are material-semiotic precipitates, highly concentrated and, again, quite literary performances.

*Phantasmatics* are a modestly and contingently describable tissue of that performativity,

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<sup>32</sup> Young 1992:197-8.

<sup>33</sup> Latour 1993:104-106; Haraway 1997.

<sup>34</sup> Latour 1993:91-129.



suffusing human and non-human entities throughout the network. Performative nexi carry and constrain phantasmatic possibility, which otherwise conjoins and reaches extensively into both technical and public actions. This is precisely why nexi like the Mesozoic/Lost World are so potent in the reproduction of culture. Each nexus is so highly articulated through the network of production, that it becomes for all intents and purposes a matter of fact. In Latour's words, it has been "fabricated well, thus it is autonomous".<sup>35</sup>

This is a suggestible and fluid complex derived from the actions of heterogeneous sociotechnical networks. It is not a set of asymmetric, privileged, discretely acting forces like "ideology", or "society", or "nature". As this is indeed a complex, the waning influence of one powerfully articulate figure like Osborn does not necessarily signal the passing of the phantasms he mobilized, as Schudson seems to believe. Because the network is wrought in such an articulate and well-distributed manner, those phantasmatic commitments have remained in varying degrees, though they have been subject to deformation and mutation, as these networks are anything but stable. Some may be more robust than others, but all are subject to change.

Notwithstanding Schudson's misapprehension of Haraway's essay, there are nonetheless, some sound messages to take from his commentary. One is that cultural studies practitioners would benefit from even more critical debate concerning their analyses. A second explicit message is that the counter-hereditarian positions of Franz Boas who worked concurrently with Osborn at the AMNH could be brought productively into the analysis, in order to give proper relief to the totalizing, monolithic sense of the social grip of biodeterminism on the institution's practices. Still, despite his undeniable status as promoter of anthropological relativism,<sup>36</sup> it should be pointed out that Boas was not absolutely averse to the totalizing, fixing framing of cultures in his notion of an exhibited "ethnic group" or

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<sup>35</sup> Latour 1997:63.

<sup>36</sup> Stocking 1968:228-233.



“life group”, the equivalent of the zoological “habitat group”. Boas would have endorsed their production if the right architectural and visualizing techniques had been available at the time.<sup>37</sup> It is also important to recall that Boas worked in a “natural history” museum, and the culture of “pre-industrial” peoples were entailed within this embracing ‘history of nature’, even though he did not privilege organic evolutionary causes in theorizing cultural change.

Yet another message from Schudson is that positional analyses do not necessarily represent the idiosyncratic readings which another individual might take away from a visit to the museum displays which Haraway analyzes. It is important to point out that Haraway makes no such claim to universal interpretation, but continually acknowledges her own partial positioning.<sup>38</sup> Moreover, multi-positional knowledges and engagements are something more readily apprehended through ethnographic rather than historical materials and approaches. I take up such material in the second half of this dissertation.

However, these are all positive points about what *could* or *should be done*, and in no way diminish what Haraway *actually did* in her still extremely influential essay. Arguably, the topic of Haraway’s 1984 article is rich enough that it could have been expanded into an entire book, and Schudson implies he would have been satisfied had she made available an even greater chain of synechdochic relations to further indicate the repleteness of the particular modes of “nature in the making” at the AMNH. Schudson, ignoring how thorough-going Haraway’s connections to non-publicized practices “behind the dioramic recreation” are, laments instead, “No other part of the museum ever speaks in this essay — no dinosaurs, no Margaret Mead Hall of Pacific Peoples,...”. Of course, Haraway’s focus was on primates, not dinosaurs or Pacific peoples. I would be inclined to take Schudson’s criticisms much more seriously, were it not for the far more extensive correspondences

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<sup>37</sup> Wonders 1993:17. Wonders points out how Boas’ concern with such presentations was that architectural limitations were not up to the illusionistic challenge, not that such a conceptualization was in principle unacceptable.

<sup>38</sup> Also see Haraway 1991:183-201, for her germinal discussion of “Situated Knowledges”.





which Haraway draws throughout the many essays accompanying her “Teddy Bear Patriarchy” article in *Primate Visions*, in which she follows primatology as public and technical culture across much of the twentieth century. Moreover, Haraway’s literal reading of primates does indeed agree well with the fine-grained accounts of palaeontology at the AMNH by science historian Ronald Rainger or with the Osborn/Doyle lost world actions I have recounted here. In the end, Haraway’s “dead literal” accounts of the heterogeneous complex of production augment, enrich and complement more limited sociological approaches—not the reverse as Schudson would have it.<sup>39</sup>

### Articulation and Cultural Reproduction

That the performative networks of Doyle/Osborn via the Mesozoic/Lost World articulates so well with Haraway’s reading of the African Hall dioramas, substantiates further how Haraway’s conclusions should be taken quite seriously as indicative of a practice of cultural reproduction. Though Schudson raises the question of how Osborn’s eugenics visions came to be reproduced as Osborn’s influence waned in the 1930s, this was never at issue in Haraway’s article. Eugenics did at least *appear* to be receding somewhat from the mainstream of scientific discussion in America and at the AMNH during the 1930s, as Ronald Rainger has pointed out.<sup>40</sup> But even this point is complex, as science philosopher Val Dusek noted in his response to Schudson’s comments, “The sadder story is that racist views like Osborn’s were not widely discredited until pictures of [Nazi] death-camp victims were published after World War II”, and moreover, “Many of Osborn’s exhibits, with their

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<sup>39</sup> It is worthwhile noting that Schudson takes an ideological stance in the strictest sense of the term, taking the express position as a “liberal” social scientist, presenting that as some sort of privileged opposition to Haraway’s “radicalism”. Schudson suggests that liberal approaches in the social sciences have been threatened by the rise of cultural studies, particularly, in his opinion, because the latter appeal to the radical interests of many college students.

<sup>40</sup> Rainger 1991:182.



ideological messages intact, were retained into the 1980s.”<sup>41</sup> Indeed, the African Hall dioramas persist to this day.

The *durability* and subsequent *endurance* of the dioramas which Dusek refers to is far more to the point here. They are highly articulate, in that the cultural purchase of their naturalistic logics has endured. What Haraway rightly signals in her analysis of these articulate dioramas is the resilience of certain cultural logics, practices, and relationalities which are highly susceptible to colonial, racist, masculinist phantasizing. What I am suggesting, like Haraway, is very different from the possibility of some slavishly exact reproduction of Osborn’s or Akeley’s rhetorics, thoughts, actions, or practices. Sarah Franklin, summarizing fellow anthropologist Marilyn Strathern, aptly remarked that “the delightful feature of cultural reproduction is its very reliable tendency never to reproduce itself exactly.”<sup>42</sup> It may be, as Rainger noted, that “...for those that visited the museum it was a form of theater, a pleasure palace filled with dinosaurs, titanotheres, and other entertaining features”.<sup>43</sup> The far more important question is the identification of the phantasmatic qualities which are constituted through this theatrical mode of nature-engaging and nature-in-the-making.

The saurian world-making available through the figurative technology of the Mesozoic/Lost World of Osborn/Doyle conjoins fluidly with the narrative outcomes which Haraway has signaled. When Haraway remarks on the experience of gazing into the Gorilla diorama, stating that “*culture meets nature through the looking glass at the interface of the Age of Mammals and the Age of Man*”<sup>44</sup>, one could readily reply *and culture opposes nature in the face of terrifying monstrosity across the chasm between the Age of Reptiles and the*

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<sup>41</sup> See responses by Marshall Hyatt and Val Dusek to Schudson’s article in letters to *Lingua Franca* re: August 1997, <<http://www.sevenbridgespress.com/lf/Discussion/letters.html#NP>>

Also see Kimbrell 1993:250-260 for a brief outline of the ebb and flow of eugenic commitments in American life, and for a more full account, see Kevles 1985.

<sup>42</sup> Franklin 1997a:2.

<sup>43</sup> Rainger 1991:180.

<sup>44</sup> Haraway 1997:235.



*Age of Man*. By these natural/cultural logics which natural history museums replay persistently, dinosaurs, apes, and humans are narratively, tropologically of a piece—and the chronotopes of the diorama, the life restoration scene, the African “Edens” of pastoral “organic families”, the remote Cretaceous worlds of clashing alien terror, are simultaneously a most forceful, over-determined technological outcome and a crucial translator of these logics.

The coinciding museological production of dioramas such as Akeley’s gorilla group, and Mesozoic dramas such as Knight’s *Allosaurus* devouring *Apatosaurus* with its corresponding skeletal life restoration in the AMNH galleries, align these two technologies in an effective syntax of cultural narration. In the case of the displays, the visitor looks *through the looking glass* at the gorilla group, or alternately *across deep time to an alien world* at the rendered dinosaur scene.<sup>45</sup> In both instances, the visitor is positioned against an *other*. The over determining of particular dramas of nature in these comparative scenes gives them special oppositional power, such that one can literally pose Haraway’s “simian oriental”—the ape as humanoid other in nature—against the “saurian alien”—the dinosaur as alien other in nature. In this manner, the Mesozoic scenario is a syntactical complement to the Gorilla scenario. The two are mutually intelligible productions in the common cultural apparatus of the American Museum of Natural History, wrought through a tale of deterministic evolutionary progress.

Considering now the more widely linked networks of cultural practice, the interperformativity of the Mesozoic nexus and the Simian diorama operates along one vector *within and across the museum space*. At the same time, the interperformativity of literature and museums is achieved through the Mesozoic nexus operating along a second vector, *extending beyond the museum space* into the circulation of published novels like those of

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<sup>45</sup> “Deep Time” is the term used by Martin Rudwick (1992) to designate the radical separation between the present and the past implied by certain modes of picturing practices associated with palaeontology and geology.





Doyle—and many other media to follow. Phantasmatics, then, are played, replayed, and circulated widely in these complementary nexi, through this complex of highly articulated performative networks of human and non-human action.

One implication of course, is that there will also be other vectors extending in many different directions by means of the performative nexus across ever-longer, more complex networks. I take a cue here once more from Haraway's comment on the Akeley gorilla diorama:

*Lit from within and surrounded by the panoramic views made possible by Hollywood set painting and the new cameras of the 1920s, the perfect natural group—the whole organic family in nature—emerged in a lush Eden...*

Haraway's quite correct point about cinematic technologies—which developed within a longer history of panoramic, scene-making spectacles of the preceding two centuries<sup>46</sup>—is utterly salient to the continuing twentieth century history of public-scientific trading related to dinosaurs which followed from the Doyle/Osborn moment. The ongoing repetitive cinematic performances of the Mesozoic/Lost World would entwine with the phantasies which Haraway pointed to in the AMNH and to which she referred as the “lush Eden” of African great apes. The saurian lost world and the simian Eden-world would be netted together and travel across the twentieth century through science *and* spectacle, recirculating and updating this doubled nexus and its networks of figures, museum displays, colonial logics, palaeontological practice, and Hollywood commercial entertainment.

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<sup>46</sup> See Altick 1978.



# Recirculating Scenarios

## Phantasies of Difference in the Systematics of Life

*...their physical lives run along the simple, linear track of time, but their minds move back and forth through the ages, jumping onto the tracks where time moves at a more complicated pace.<sup>1</sup>*

—Peter Douglass Ward, on palaeontologists' lives in space and time.

Before moving to a discussion of current cases of palaeontological phantasies and Mesozoic performativity, I want to trace an extended genealogy of public-scientific trading of the Mesozoic/Lost World nexus and its logics. This genealogy connects the Doyle/Osborn actions of the early decades of the twentieth century with the actions of dinosaurian palaeobiology and systematics in the final decade of the twentieth century. While the intervening history is far richer than what I can convey in this limited forum, the shorthand genealogy I present here indexes quite clearly how the actions of dinosaur scientists have continued to interleave with those of public culture—especially populist film, literature and spectacle—by means of the performativity of the Mesozoic.

Whereas, to this point, I have traced the relocating of this performative nexus between literary, museological, and technical locales, I now turn to aspects of its movement and transformations over time.

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<sup>1</sup> Peter Douglass Ward (1992:207) made this comment about how palaeontologists like himself work persistently with time and history. In this instance he had been inspired by the character Billy in Kurt Vonnegut's novel, *Slaughterhouse Five*.



# A Twentieth Century Genealogy of Mesozoic Performativity

The voluminous 1997 compendium of semi-technical dinosaur science and history, *The Complete Dinosaur*<sup>2</sup> compiled by vertebrate palaeontologists James O. Farlow and Michael K. Brett-Surman includes 47 essay contributions, most of them by leading researchers on dinosaurs and palaeobiology.<sup>3</sup> It includes such well-known dinosaur scientists as Peter Dodson, Kenneth Carpenter, Edwin Colbert, Paul Sereno, Dale Russell, Phillip Currie, to name only a few. The volume ranges widely over such topics as the history of dinosaur discoveries, “Molecular Palaeontology”, “Dinosaur Combat and Courtship”, biogeography, descriptive overviews of all the major dinosaur taxa, “Metabolic Physiology of Dinosaurs”, “Non-Dinosaurian Vertebrates of the Mesozoic”, “Hunting for Dinosaur Bones”, “Richard Owen and the Invention of Dinosaurs”, even a chapter “Dinosaurs and the Media”. As the title promises, the volume aspires to be “complete”, sampling an astonishingly wide range of practices of Mesozoic worldmaking and performative action.

However, it is the dedication to this volume which provides a powerful indexing of the simultaneous placement of dinosaurs and palaeontology in scientific and public culture:

To  
Ray Harryhausen  
(whose work evoked a sense of wonder in many future palaeontologists)  
and  
Forry Ackerman,  
and to the memories of  
Barnum Brown,  
Edgar Rice Burroughs,  
Sir Arthur Conan Doyle,  
Thurgood Elson,  
Charles W. Gilmore,  
and  
Willis O'Brien:

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<sup>2</sup> Farlow and Brett-Surman 1997.

<sup>3</sup> Two other encyclopaedic volumes on dinosaurs and dinosaur palaeontology were published in 1997— something of a banner year for this— providing an enormous quantity of detail on the constitution of dinosaur worlds, biologies, and evolutionary histories. The other two volumes include one edited by two leading paleontologists, Currie & Padian (eds.) 1997, the other a compilation by D. Glut 1997.





These men did indeed have an impact, but some unpacking is required. All are ‘actors’ in the nexus of Mesozoic/Lost World performativity, participants in the resurrecting of science’s monsters to vivid life in well-bounded geographies. While most are well-known to the established dinosaur palaeontologists in North America whom I have known and who attend professional meetings on vertebrate palaeontology, only two of the listed men were professional palaeontologists. Every one of the remaining figures is associated with the English language film and literary industry of dinosaurian worldmaking. Heading the list, and particularly telling, is one of Hollywood’s most lauded movie monster animators from the 1950s onward, Ray Harryhausen. Summarizing from here, the dedication lays out a selection of palaeontologists (Brown and Gilmore), lost world authors (Doyle and Burroughs), a B-film cult figure (Ackerman), another highly acclaimed giant-monster film animator (O’Brien), and even a fictional palaeontologist from a monster movie (Elson). This hybrid lineage leads ultimately to those on whom the figures had their impact, the editors themselves, two late twentieth century dinosaur authorities who are clearly prepared to recognize and honour the public culture infusing of the scientific cultures in which they participate.

It is fairly straightforward to elaborate this lineage by considering each named individual or fictional character and then articulating them more fully with the Mesozoic/Lost World nexus.<sup>5</sup> I will use this partly serious, partly ironic dedication of Farlow and Brett-Surman to discuss the technical-vernacular trade linking the imaginary of museum-located palaeontology and the filmic and literary imaginary of the American leisure and entertainment industries.

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<sup>4</sup> Farlow and Brett-Surman 1997:v. Note that Harryhausen comes first, holding a special position in the order. After that the names are listed alphabetically, suggesting an equal value placed on each of these other figures.

<sup>5</sup> With more of a taste for the dinosaur as icon, rather than as occupant of a geography, aspects of this discussion have been outlined in a different manner by Mitchell 1998, who in turn borrowed liberally on an earlier outline of my own, Noble 1994.



## Pre-Cinematic Animateurs

The two palaeontology professionals, *Barnum Brown* and *Charles Gilmore*, are famed fossil collectors who, starting from just prior to the turn of the twentieth century, provided a tremendous number of the material specimens and technical descriptions which helped to fill in the ever-increasing diversity of the ancient world of dinosaurs. Brown, as mentioned previously, worked for the AMNH under Osborn, while Gilmore collected for the Smithsonian Institution's Museum of Natural History. Among the dinosaurs either collected, described, and/or provided for display by Brown and Gilmore were specimens of *Stegosaurus*, *Triceratops*, *Tyrannosaurus*, *Albertosaurus*, *Diplodocus*, *Brachiosaurus*, *Apatosaurus*, *Corythosaurus*, *Velociraptor*, *Allosaurus*, and *Ankylosaurus*. The two were central advisors over the first four decades of the twentieth century in the mounting of dinosaurs skeletons at the AMNH and the Smithsonian respectively.<sup>6</sup> Osborn, as dean of American vertebrate palaeontology looms in the shadows throughout this history.

Recall that over much the same period as when Brown and Gilmore worked, the most famous artist-illustrator of prehistoric life worlds, *Charles Knight*, provided restorations to many major U.S. museums. These included the AMNH and the Smithsonian, as well as Chicago's Field Museum of Natural History, and the Natural History Museum of Los Angeles County. His art transposed the diversity recognized by palaeontologists into two-dimensional picture spaces. Eventually those visualizations informed interactions portrayed in museum skeletal mounts. As already mentioned, Knight's visualizing also coincided with that of *Arthur Conan Doyle* and *Edgar Rice Burroughs*' massively popular novels

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<sup>6</sup> See Rainger 1991:152-181 generally, and 163 on Gilmore.



from the 1910s to 1930s on misty lands populated by apes, proto-humans, and dinosaurs—most notably the *Challenger* and *Tarzan* novels.<sup>7</sup>

## Post-Cinematic Animateurs

Up to this point the network of figures, specimens, and productions which the Farlow, Brett-Surman dedication connects to are fairly familiar. It is the remaining figures that I want to discuss in greater length. From here—recalling Haraway’s comment on the common set design technologies of Hollywood and natural history museum dioramas—attention can turn to the movie-industry figures in the lineage. Those mentioned have been key players in film renditions of the Mesozoic/Lost World which have come to inform the public imaginary of palaeontologists and non-palaeontologists alike. In 1914, **Willis O’Brien** (also known to film animation enthusiasts as ‘Obie’) inaugurated the technological tradition which would probably more than any other practice, bring the saurian world widely into the public cultural imaginary.<sup>8</sup> That year, O’Brien took a page from Muybridge’s frame-by-frame stop-motion work on animals and bodies in motion.<sup>9</sup> After first experimenting with clay figures of Boxers, O’Brien moved to dinosaurs, which he posed and reposed, and shot frame by frame with a newsreel camera. These images could then be projected at cinematic speed to produce the illusion of motion.<sup>10</sup> Dinosaurs lived.

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<sup>7</sup> Glut 1980:50. Ape-friends raise and protect Tarzan in Edgar Rice Burroughs’ novels, including *Tarzan the Terrible*, *Pellucidar*, *At the Earth’s Core*, and in several of these the feral white man also confronts monsters drawn after dinosaurs. Burroughs’ Trilogy *The Land That Time Forgot*, *The People that Time Forgot*, and *Out of Time’s Abyss*, designed a world of several populations of primitive humanoids, “a veritable assembly line of evolution” (Glut 1980:59), living in fear of ferocious saurians. “Civilized Man” is present or implied in all of Burroughs’ productions, providing a reassurance to the reader that the primitive people are not truly us—only potentially us, lost however, in some more romantically pure past—and that dinosaurs are wholly, unequivocally *not us*.

<sup>8</sup> Glut 1980:81

<sup>9</sup> Muybridge 1887 [1969].

<sup>10</sup> This discussion draws on the review of O’Brien’s career in Archer 1993.





Between 1914 and 1919 O'Brien had produced six comical animated shorts using a clay 'brontosaurus' along with other prehistoric creatures. Cave people figured in most of these, the most notable being the 1915 "Caveman and the Dinosaur", which draws very roughly from Doyle's *Lost World* tale, pitting an ape and a caveman against a brontosaurus in order to win the favours of a "cavewoman". This funhouse view of the prehistoric otherworld was simply voyeuristic, presented like a diorama or a stage show, without any visual portrayal of a rupture in time/space. In 1919 Willis produced the *Ghost of Slumber Mountain* with World Cinema Distributing Company, owned by Major Herbert M. Dawley. The AMNH's Barnum Brown—his technical and institutional position granting him imaginistic privilege—was approached to advise O'Brien on the habits and movements of the diversity of dinosaurs that would appear in this film. In the film's tale, an uncle recounts to his two nephews his visit to a haunted cabin where a mad mountain man has an instrument through which he peers into the living world of the prehistoric past. Further exaggerating the visual circulations between palaeontology and entertainment, included in the mountain man's cabin are dinosaur figures sculpted by Charles Gilmore. Don Glut noted the dinosaur drama that ensued:

*A huge Apatosaurus lumbers through the water. Another O'Brien flightless bird, a Diatryma, primps its feathers, then devours a snake. Two Triceratops briefly fight one another, until their battle is interrupted by a large carnivore, the predatory Allosaurus, which vanquishes one of these horned dinosaurs and then stalks after Uncle Jack, before the entire adventure is revealed as a dream.*<sup>11</sup>

Here, the modern viewing subject is led into the pastworld by means of layers of time-defying technology—the filmic animation, the 'dream' of Uncle Jack, and an imagined instrument of vision, basically a "peep show" reminiscent of penny carnivals. The common phantasizing technologies of the imagination, the diorama, the camera, modeling, animation,

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<sup>11</sup> Glut 1980:82.



scientific restoration, and street spectacles were all enfolded in this, the first film directly consulted on by a professional palaeontologist.

It is well known that Willis borrowed liberally on the imagery of Charles Knight—as many illustrators and animators of prehistoric creatures of the last 100 years have done—in these earliest examples of stop motion animation of dinosaurs and prehistoric creatures, and in his later productions into the 1950s.<sup>12</sup> As vertebrate palaeontologists and museums increased the repertoire of Mesozoic inhabitants within their domains, so Knight created an ever-increasing diversity of forms in his art. The films of Willis O'Brien transposed this diversifying of dinosaurian kinds in the animated lost lands of his many films from the 1910s through to the 1950s. His animation work was featured in the first filmic version of Doyle's *The Lost World* (1925) and in Merrian C. Cooper's film *King Kong* (1933).<sup>13</sup> *King Kong* played the otherworld/homeworld opposition explicitly, the homeworld being the same as that of the AMNH, New York city. In full Osbornian, AMNH style, the simian King Kong, turns to face his *physically equal* but *mentally inferior* alien enemy in the form of *Tyrannosaurus*, along with other saurian kinds. [Fig. 13, page following]<sup>14</sup>

Both the *Lost World* film (1925) and the *King Kong* film (1933) were set in bounded world spaces, the former on a plateau, the latter on its ominous "Skull Island"—emulated later by Crichton's "Isla Nublar", or "Clouded Island" in *Jurassic Park*. The 1925 and 1933 films exaggerated the temporal distancing created by the remoteness of the lost land, by making use of a tree as bridge to span the metaphoric chasm of time between the

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<sup>12</sup> Glut and Brett-Surman 1997. Stephen Jay Gould (1992:25) has also remarked on Knight's influence in this history of image-making: "Knight created the canonical picture of dinosaurs for professionals and the public alike". Nonetheless, Gould tends to represent imagery as "social context", and externalities and stops short of looking at the complex texture of imaginistic circulation in fuller social and material terms.

<sup>13</sup> George Lucas honored the memory and contribution of Willis O'Brien to Hollywood's animation history by borrowing O'Brien's nickname "Obi" and incorporating it into his famed wizard-like Star Wars character, "Obi-wan Kenobi". Those who know Lucas's virtual icons of Hollywood, will also notice the ample use of monstrous aliens. Indeed, the Tantooine bar scene in Star Wars is peopled with otherworldly beings which appear to be modeled after the monster-bestiaries illustrated in Rudolf Wittkower's "Marvels of the East: A Study in the History of Monsters." 1942.

<sup>14</sup> Figure 13, Source: *King Kong*, 1933, by RKO Films, Directed by Henry O. Hoyt, animation by W. O'Brien and M. Delgado.





**Figure 13** (p. 100a)

**King Kong v. T. rex ("Simian Oriental" v. "Saurian Alien")**

Source: *King Kong*, 1933, by RKO Films, Directed by Henry O. Hoyt, animation by W. O'Brien and M. Delgado.







adventurer's intended escape route back to their civilization, and the deepest wilds of literally monstrous terror. [Fig. 14, page following]<sup>15</sup>

Pressing upon public horrors as well, the 1925 *Lost World* film revised the novel's ending, bringing back to London a huge sauropod. This began the Hollywood film thematic of setting a giant rampaging monster upon peaceable urban-spaces, which of course was repeated in *King Kong*, but with the giant ape taking up the role of “destroyer of creation”—to borrow Osborn's somewhat awestruck turn of phrase. Where audience sympathies for what would be understood as base, cold-blooded reptilians were meant to be absent, the American-male-modeled, woman-desiring ape was played as a more ambivalent and at moments vulnerable character, one to whom the viewers' sympathies were meant, at least partially, to be directed.<sup>16</sup>

Underscoring the trading between museological and entertainment technologies, both films indeed used dioramic scene-making techniques to produce their framed world of evolutionary order for the viewer. Willis produced intricate miniature sets and matte painted backgrounds, aided by ever more elaborate stage lighting. In both films, and borrowing the modeling techniques which Knight had used as a preliminary step in the process of developing a restored dinosaur scene,<sup>17</sup> he worked with sculptor Marcel Delgado to develop metal ball-and-socket ‘skeletons’, covered by sponge-rubber ‘muscles’ and latex ‘hides’—a sort of miniaturized taxidermic preparation out of synthetic materials. Both played through the race-gender hierarchies familiar from Doyle's novel and Osborn's networks, replete with savage ape-people, technologically intermediate “Indians”, and advanced gun-toting great white hunters. A new turn in the films, however, was the introduction of female characters into the adventure travel action, complicating the simpler attention on homosocial bonding

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<sup>15</sup> Figure 14, *The Lost World*, 1925, by First National Films, Produced by Merrian C. Cooper and Directed by Ernest B. Schoedsack, animation by W. O'Brien and M. Delgado.

<sup>16</sup> cf. Mitchell 1998:171.

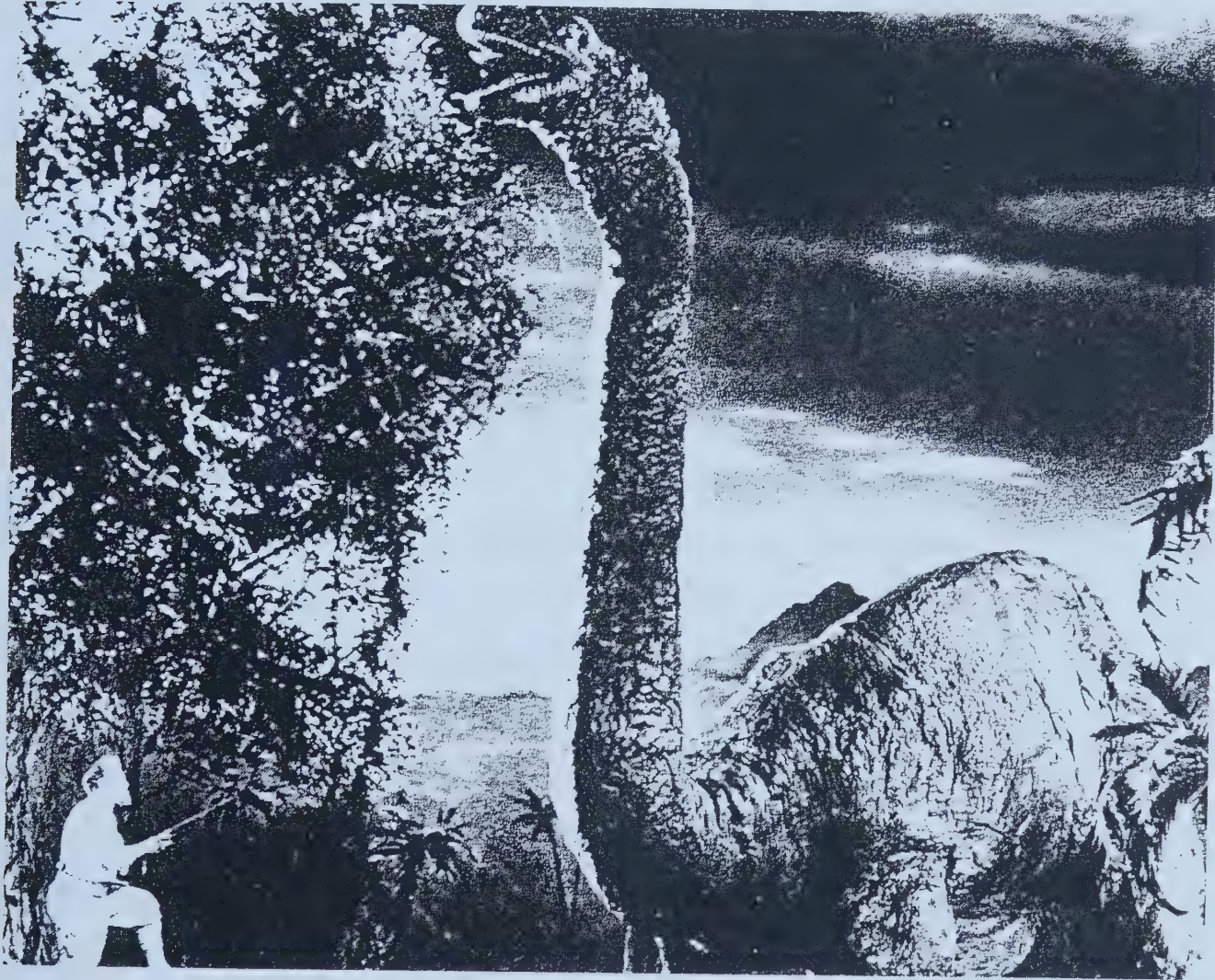
<sup>17</sup> See Massey and Glut 1982:12.



**Figure 14** (p. 101a)

**Scene from *The Lost World* (1925 Feature film)**

Source: *The Lost World*, 1925, by First National Films, Produced by Merrian C. Cooper and Directed by Ernest B. Schoedsack, animation by W. O'Brien and M. Delgado.







with sexual desire—that is, specifically male-perspective heterosexual desire—a resilient, reiterative entertainment device of Hollywood film throughout its history.<sup>18</sup> In the 1925 *Lost World* film, the adventurers are accompanied on the journey to the lost plateau by a bold young woman who Malone ultimately marries, replacing the demanding fiancée Gladys of the original Doyle novel. *King Kong* focuses around the ape’s fascination for the blonde character Ann Darrow, an actress (played by Fay Wray) being filmed on Skull Island to star in a film entitled “Beauty and the Beast”. This fixation is a reification of heterosexual eroticism surrounding the possibility of miscegenation and interspecific contact. That theme would come to be re-enacted obliquely or directly in late twentieth century films on women primatologists including National Geographic productions on Jane Goodall, or the Michael Apted film *Gorillas in the Mist*.<sup>19</sup>

Such race-gender hierarchies and their intersection with desire would be replayed in other mainstream films of the 1930s, such as *Blonde Venus*. In a cabaret scene from that film the Germanic Marlene Dietrich performs in a gorilla suit against black-face female cabaret dancers, only to remove her simian garb and present herself in extreme bloneness, extreme whiteness to the predominantly white male audience, while African-American bar tenders and service workers are explicitly posed in this scene, looking on, as if happy to be in these subordinate roles and witnessing this play of interspecies, inter-racial desire. While mirroring such science-crafted hierarchies as those of Francis Galton, Madison Grant, and Henry Fairfield Osborn with their biologically rationalized taboos against racial mixing, the playing of racial contact came to be used equally in the Dietrich role—as had been done with the Ann Darrow character in *King Kong*—as a machinery that could effect desire.

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<sup>18</sup> See, for example, Laura Mulvey’s “Visual Pleasure and Narrative Cinema,” (1991) or Hansen, Needham & Nichols 1991.

<sup>19</sup> For a critical psychoanalytic appraisal, see Sippi (1989). And for a masculinist portrayal of ape-woman sexual intrigue, see Hayes 1986. And cf. Noble, in press (a).





Figure 15 (p. 103a)

1940s Poster for film *Jungle Manhunt*

Source: Glut 1980.





liberator of all things vulnerable. This is eminently visible in the array of pulp fiction covers and film images on the following page [Fig. 16, page following]<sup>23</sup> As pre-eminently white-male productions, the typology of otherness seen in the pulp literature and otherworldly giant monster films fits closely with the point of Hansen et al.: “The Other (woman, native, minority) rarely functions as participant in and creator of a system of meanings, including a narrative structure of their own devising. Hierarchy and control still fall on the side of the dominant culture that has fabricated the image of the Other in the first place.”<sup>24</sup>

Don Glut isolated what he felt was the key O’Brien-animated scene in *King Kong* which he also regards as “art”, but which, more to the point, inaugurates the popular culture media genre emphasizing these over-produced American male race-gender phantasies and desires.<sup>25</sup> In this scene, O’Brien’s *Tyrannosaurus* is closing in on the vulnerable “tiny blonde woman” Darrow cowering by a tree:

*Kong rushes to Ann’s rescue, battling the scaly monster with near-human cunning and skill, until, his hairy hands tugging apart the tyrannosaur’s steam-shovel jaws, he slays the dinosaurian adversary. Kong beats his massive breast triumphantly, but it was also a triumph for O’Brien, whose artistic peak was evidenced by this sequence, one of the most memorable in King Kong.*<sup>26</sup>

O’Brien’s scene and Glut’s response to it consolidate many of the logics which were also available in Akeley’s great ‘giant of Karisimbi’ standing to protect its family and its Eden. The intended male viewer identification with the “near-human cunning” of the gorilla also parallels the blended characterization of embodied intelligence and massive physical strength seen in Doyle’s Challenger. The terrifying alien adversary in Osborn and Brown’s king tyrant lizard is repeated. Here too are the gender-race-evolution hierarchies of the Doyle/Osborn interperformative nexus. As dramatic moment of naturalized American, male-

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<sup>23</sup> Figure 16, Source: Glut 1980.

<sup>24</sup> Hansen et al. 1991:20

<sup>25</sup> See Noble 1994:102-3, and subsequently Mitchell 1997:170-173, for further discussion of *King Kong* and the monster imaginary of difference and spectacle in which it participates.

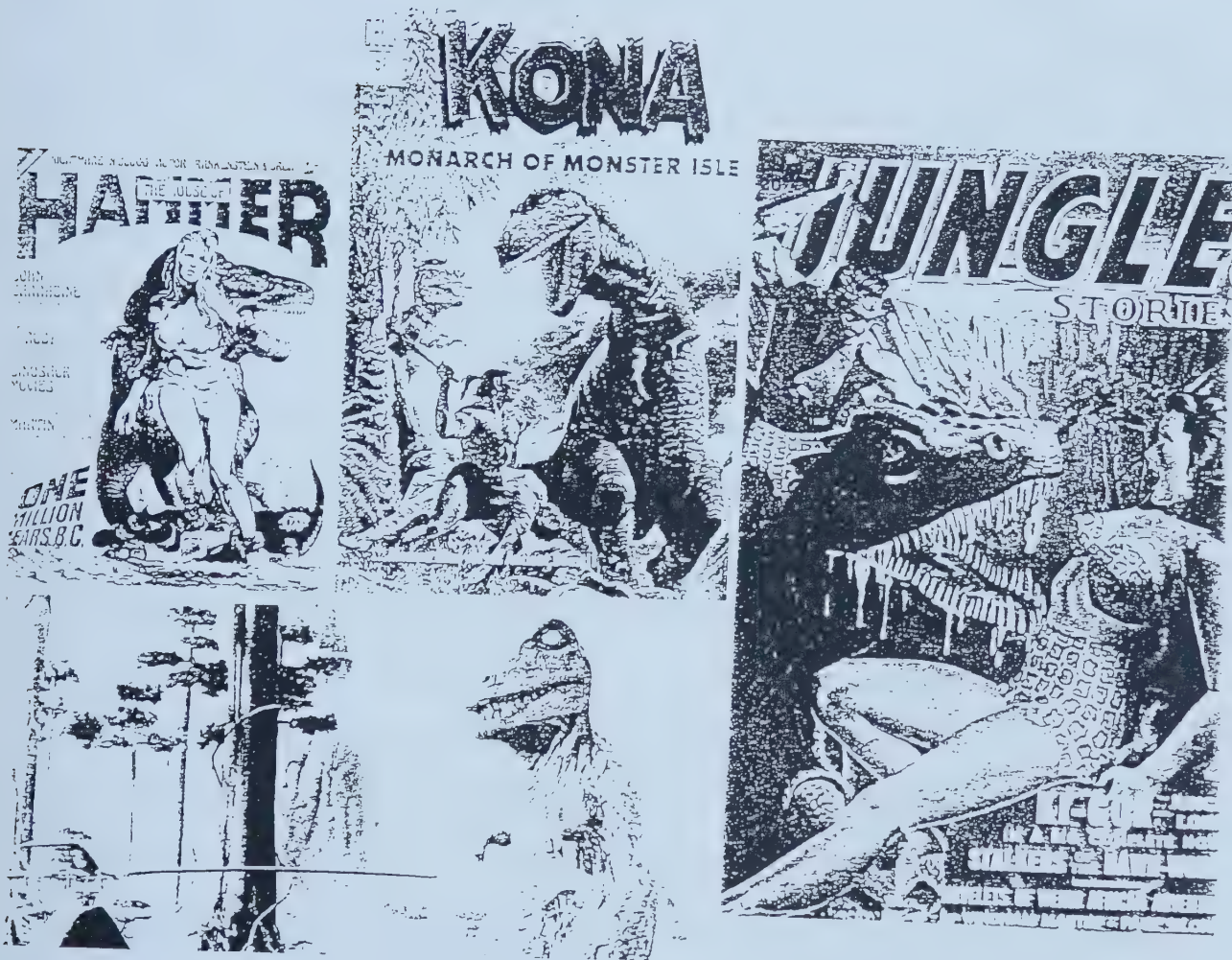
<sup>26</sup> Glut:1980:91.





**Figure 16** (p.104a)  
 Comic Book and Filmic Lost Worlds of White, Masculinist,  
 Heterosexual Desire

Source: Glut 1980.







centred heterosexual desire and identification, it has indeed become a “most memorable” moment in a film that has taken up a seemingly inextinguishable place in the American cultural imaginary.

Staying with the Farlow and Brett-Surman dedication genealogy, their leading figure was **Ray Harryhausen**, Willis O’Brien’s protégé. The two met in 1939 when O’Brien, true to the phantasmatic genre, was working again with Merrian C. Cooper on a film “about primitive Nordic warriors who ride the backs of gigantic eagles, mounted on saddles made from Triceratops heads”<sup>27</sup> and who battle such prehistoric monsters as *Allosaurus* and *Pteranodon*. Harryhausen may well have been the most viewed of saurian and non-saurian stop-motion monster animators in American film history (certainly until Spielberg and his technical associate Phil Tippett<sup>28</sup>), producing imposing creatures for the many and best-known *Sinbad* movies, for the cult prehistoric monster “classics” *The Beast from 20,000 Fathoms* (1953), the palaeo-Western *Valley of the Gwangi* (1969), and *One Million Years B.C.* (1967) which featured Hollywood “sex symbol” Raquel Welch.<sup>29</sup> On the latter film, Glut underscores what he feels made the movie successful: “The now-classic photograph of the shapely Welch in her brief animal skin lured most patrons into the theaters, but once they had taken their seats, Ray Harryhausen provided visual thrills of a different sort.”<sup>30</sup>

These are, by now, predictable elements of the visual-erotic-adventure make up of these films and their associated libidinal and colonial programmatics. Many living dinosaur palaeontologists, now in their 40s and 50s, have confirmed with me they saw these films in their youth. These dynamic animated dinosaurian presentations would have been available to them as geographic renderings and phantasmatic tales of the Mesozoic/Lost World. They

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<sup>27</sup> Glut 1980:100.

<sup>28</sup> A discussion of Phil Tippett’s animation work and his alliance with Spielberg is provided in the closing pages of Chapter 12 of this volume.

<sup>29</sup> In *One Million Years B.C.*, there are no speaking roles, no narration, which would bring even more attention to the body as iconic form. As such “Raquel Welch” as sex symbol is exaggerated as the memorable iconic form in the film, alongside the dinosaurs.

<sup>30</sup> Glut 1980:113.



would complement the legitimated scenographies (i.e. expert, scene-making practices) in dinosaur books and in natural history museum displays. Glut, as an intellectual colleague of many dinosaur researchers, expressed the sort of stance that palaeontologists might be expected to take in relation to such warmly-regarded filmic pseudo-dinosaurs. He wrote that Ray Harryhausen's Rhedosaurus in *The Beast from 20,000 Fathoms*, "may not have been cited in any palaeontology book, but Harryhausen's creation is a visual joy, expertly crafted and animated and certainly the finest giant monster to appear on the screen since the original Kong."<sup>31</sup> That of course was prior to the *Jurassic Park* film animations of the 1990s. When considering the tremendous trading of filmic and palaeontological cultures, the cinematic Rhedosaurus has to be considered as phantasmatic kin of the scientific *Tyrannosaurus rex*, whose restoration has never been more accurately achieved in palaeontological terms than in films like *Jurassic Park*, or the 1998 animated 3-D IMAX film *T. rex—Back to the Cretaceous*.

Continuing further with the abbreviated sketch of science/spectacle trading, two of the more obscure characters in the lineage of Farlow and Brett-Surman's dedication are Thurgood Elson and Forry Ackerman. **Thurgood Elson** is the fictional, mild-mannered filmic palaeontologist who dies in the Harryhausen-animated film *Beast from 20,000 Fathoms*. Elson is a model of scientific modesty in Hollywood form. His inclusion is something of a joking play on the part of the editors on the fictionality of such figures in this "in memoriam" component of the genealogy, pointing directly at the ironies of popular conceptions of professional palaeontologists. **Forry Ackerman** ("AKA Mr. Science Fiction, The Ackermmonster..."<sup>32</sup>) is a cult figure revered in Hollywood-centred science fiction circles. Ackerman is a science fiction monster magazine editor, collector of monster print and cinema ephemera, literary agent, film producer, writer, extra and bit-part actor in

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<sup>31</sup> Glut 1980:107.

<sup>32</sup> From a major Ackerman fan site, <http://wvnm.wvnet.edu/~u0e53/Ackerman.html>. Also see the "on-line Ackermuseum", <http://www.best.com/~4forry/foyer.shtml>.



dozens of cultish science fiction and B-films.<sup>33</sup> Some of these films featured dinosaurian monsters. Many were soft-porn movies aimed principally, yet again, at American white male youth—both “in moral state” to use Haraway’s words, but also, and more to the point, *in libidinal state*.

Donald Glut—who is also a contributor to *The Complete Dinosaur* and co-authored the chapter “Dinosaurs and the Media” with Brett-Surman—forms a common connection between his professional colleagues, the editors, and Forry Ackerman. Ackerman has been the source of enormous numbers of pop and kitsch dinosaur culture imagery which Glut has included in his numerous publications, and some of which are also included in *The Complete Dinosaur*.<sup>34</sup> As well as having written the official novelized versions of the *Star Wars* films and published numerous books on Hollywood movie monsters, dinosaurs, and other topics of general pulp interest, Glut is also a film maker, having written and directed *Dinosaur Valley Girls*, an adventure “comedy of eros” set in a land of prehistoric beings and turning on American male heterosexual phantasies via a pulp, B-film sensibility.<sup>35</sup> Glut’s work, is in a very direct way interpolated in the trajectory of science and spectacle trading which I have been discussing.

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<sup>33</sup> A short and random sampling of well-known and forgotten films over five decades in which Ackerman was involved in some manner include: “The Beast With a Million Eyes” (1956); “Queen of Blood” (1962); “King Kong” (1976); “Attack of the B-Movie Monsters” (1985); Don Glut’s “Dinosaur Valley Girls” (1996).

<sup>34</sup> See the source notes for illustrations in Glut & Brett-Surman 1997, and throughout Glut 1980 and in his acknowledgments page.

<sup>35</sup> The promotional sketch for *Dinosaur Valley Girls* reads: “The discovery of a magic stone catapults Hollywood action hero Tony Markham backwards through time, into a mysterious prehistoric land populated by fierce, predatory dinosaurs...and nymphomaniacal cave vixens in strangely modern animal-print underwire bikinis. Available in a racy director’s cut or in a kid-safe family version.” Source, AOL, on-line movie shopping page; web address is, <<http://aol.conline.com/Facts/Movies/0,60,55341,00.html>>.





## Phantasmatic Reproduction

Finally, and extending somewhat more on their listing, the editors themselves may be taken to complete the genealogy of Mesozoic worldmakers, bringing it up to the late 1990s. Jim Farlow is currently Professor of Geology at Indiana-Purdue University and Michael Brett-Surman is Assistant Professorial Lecturer in Geology at George Washington University and Museum Specialist at the Smithsonian National Museum of Natural History. What Jim Farlow and Michael Brett-Surman do, in what was no doubt to them nothing other than a simple dedication, is acknowledge the much grander gestures of connection which link filmic, literary, and technical worldmaking practices. They suggest the mobility of the Mesozoic/Lost World performativity to which I have been pointing. There is a heavy technical, personal, and phantasmatic trade occurring legitimately across these several domains, even if it may be a very haphazard one. Moreover, that trading over the last century has continued to reiterate and transform the hybrid figure of the Mesozoic/Lost World.

Farlow and Brett-Surman may have included the film-culture figures in their dedication in some limited ironic or parodic sense, but for the most part, it is clear that they are here out of an honest wish to pay homage to their influence. This is not unlike Glut from whom I have drawn upon repeatedly here and who writes consistently about the “homage” which animators and illustrators pay to one another by copying previous works of their colleagues—the animators borrowing heavily from Knight, or from each other. Glut notes in one instance, “Harryhausen paid homage to O’Brien by having the Gwangi, an enormous *Allosaurus*, scratch its ear, as had the *Tyrannosaurus* in [O’Brien’s] premier scene in *King Kong*.” That was a 1969 production drawing on O’Brien’s 1933 production.

Connections across more than 30 years can be made by means of the simplest of gestures including simple citational practice. Remarkable networks of borrowing and exchanging of



visions, tales, associations, can be made in the process. The most poignant connection made by most living artists and dinosaur palaeontologists alike, is with the influence of Charles Knight upon their way of envisioning dinosaurs and worlds of the past. The cautionary note about cultural reproduction which I make here, of course, is that Knight's otherworlds were already phantasmatically configured and that the imaginings most notably of Osborn and Doyle and a particular masculinist, imperialist imaginary reside unsuspectingly here.

Such gestures of homage, help to interlink the complex genealogies of the material-semiotic performances of commercial spectacle with those of quasi-commercial North American palaeontology into an elaborate, always shifting, relational fabric we may rightly refer to as science as culture, nature-culture. Living dinosaur palaeontologists do not simply and blindly reproduce the phantasies of Hollywood, or of Osborn's imperialist or racist natural history. But those phantasies are obscurely present in the complexity of cultured knowing and materialized culture which inform palaeontologists in an everyday way, lurking like some phantasmatic *bête noir* in the worldmaking practices of palaeontology through the figurative flows permitted through the Mesozoic/Lost World nexus.

Those phantasies of vernacular/scientific culture also have typological consistencies. The worlds are populated by an enormous, interacting diversity of creatures. There are suggestively erotic elements in these worlds. Primitive humans meet modern humans. Simians meet saurians. Scientists resurrect and restore dinosaurs. Different technologies for traveling to, seeing, or conquering the past are used. All of it plays off sensibilities of the real and the fabricated. Quite consistently, the Mesozoic/Lost World as apparatus of transmission for such phantasies is conformed by travel, expansion, mapping, evolutionary hierarchies, conquering of the unknown geographic space/time. The impact of that, through



the impact of all named in the Farlow and Brett-Surman dedication *cum* genealogy, is unavoidable.<sup>36</sup>

Farlow and Brett-Surman, in the introduction to the final section of the book “Dinosaurs and the Media”, strike the standard note of building boundaries between popular matter and technical matter by suggesting the former should be regarded solely as amusement, the latter as factual, testable and quantifiable: “Read this chapter just for the fun of it. There won’t be a test on this material. We promise.”<sup>37</sup>

My work now, is to actually put these supposedly non-scientific, yet scientifically-derived materializations to the test. The task is to consider how this very political form of “fun” locatable in the phantasmatic practices and materializations of blurred popular-scientific culture—with their attendant dangers, mixed meanings, problematics, and uncertainties—are all necessarily part of the “real science” of palaeobiology, even today.

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<sup>36</sup> The genealogy I am tracking has many complexities, including a notable set of phantasmatic revisions, to which I will be referring moreso in the ethnographic section of this dissertation. Much has been written by palaeontologists and dinosaur populists in the last 20 years of a shift in the palaeontological characterization of dinosaurs which is often said to have started with the publication of a single paper in the late 1960s by Yale dinosaur researcher John Ostrom. (cf. Noble-Wilford 1986; Desmond 1977). That dinosaur was, predictably enough, a carnivorous dinosaur, and is known technically as *Deinonychus* (“terrible claw”) *antirrhopus*. (Ostrom 1969). The beast has been cited as a case of an energetic dinosaur, powerful, a group hunter, compact in size, and most notably, potentially endothermic—meaning its body temperature was regulated by some internal mechanism. Moreover, its evolutionary history was linked to that of birds, producing the salient effect of dissolving the extremely concrete spatio-temporal boundary of extinction and geological discontinuity separating the “Age of the Reptiles” and the “Age of the Mammals”. Without digressing into the culture of this revised natural history of dinosaurian lives and worlds, I raise this point to mark a general shift that began visibly in the 1960s, where dinosaurs became less alien both biologically and publicly. Multiple dinosaurs lineages within the Mesozoic and extending beyond its bounds have been delineated, becoming more complex and detailed. Palaeoenvironmental analyses has become more totalizing, both globally and locally. Behavior of various kinds of dinosaurs has been described with the sort of imagination that one would expect of science fiction film or novels. With these shifts have come enormous new sets of alliances of humans and non-humans, a revitalization of dinosaur palaeobiology, and an ever-more vigorous “enterprise culture” linking the scientific with the public. Revised narrations have been brought to bear in the complex. Nonetheless, the Mesozoic/Lost World chronotope persists as the overall ordering apparatus. The emphatic point I make, is that the productive network of human and non-human agencies has experienced extensions and deformations, but no wholesale revisioning. With the island world intact as the nexus of natural/cultural, scientific/public rupture and flow, the entirety remains as modern as ever. But this does suggest that networks, while resilient, are the location for distributed change, not rather some critique of the precipitated apparatus, which, so long as the network remains more or less intact, will be retained in an exceedingly robust way.

<sup>37</sup> Farlow and Brett-Surman 1997:674.





# Systematics Meets PhantasmatICS

The question I return to is that which I signaled in my opening chapter on Mesozoic Performativity: How do scientists manage incursions of what is only supposed to be fictional into what is only supposed to be factual? The literal character of technical practice as performed by palaeontologists in their pursuit of new specimens continues. In many museum-located dinosaur presentations today, the visitor's attention is still typically directed to the outward journeying work, the spectacle of adventure, and the outcome in some wondrous specimen located in its framed world, which in turn gives some sense of special honour and authority to science and its practitioners. But in the opposite direction, away from or behind the scene produced — “backstage” as it were<sup>38</sup> — the palaeontologist is acknowledged to work a domain that is far more difficult to scrutinize — the hidden domain of the anatomical, the systematic, the chemical, and so forth — all the stuff that goes on in the field, the laboratory, the comparative collections, and the conferences and symposia of professional palaeontology. This is a bidirectional cultural practice with non-expert museum visitors and expert scientists positioned on opposite sides of the “scene”, which is also, therefore, a scene of translation.

Typological work is carried out within the containing time/space of a diorama, much as it is in a palaeomap reconstruction in a technical article, or again in a monster island scenario. The work of “scenarization” (i.e. translating ideas into scenes and scenarios) may be held in common, but the purported difference is that the scientist has a technical practice of morphological and phylogenetic analysis which authorizes the typologies which are developed, and that the typological work is supposed to be undertaken *a priori*, that is

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<sup>38</sup> I thank Anne Lorimer (1996) for her use of this term in a conference paper presented at the American Anthropological Association meetings.



before the scenario is developed. However, as soon as scientific practices are located within a much wider-ranging public-scientific trading history such as those I have been discussing, then the question of phantasmatic recitation from all antecedent locales—expert, vernacular and otherwise—comes into play.

As noted in the case of Osborn, the AMNH netted together public and scientific practices in a fully articulate manner, such that phantasmatic identification circulated everywhere—in the displays, museum policies, the commitments of board members and patrons like Roosevelt, and of course into the very detailing of the workings of ‘life’ via Osborn’s hidden energetics animating the “heredity mechanism”. Osborn’s success and influence hinged on the harnessing of action in all these registers simultaneously and articulately. It was through these articulations that his eugenics agenda could also be advanced. And of course, we are left today with a legacy of Osbornian relics in the form of the great dioramas of the AMNH, a matter of significant and ongoing public import. Scenarization via display and spatio-temporal performativity, as with the Mesozoic/Lost World, was crucial to the articulation then, and continues to be so today.

Having understood the importance of scenarization at the intersection of technical and public practices, it is possible to see the various accounts in the previous chapters of Phillip Currie’s (and Burroughs’) Gryf, Dale Russell’s Dinosauroid, Andreas Hansen’s Toho monsters, Farlow and Brett-Surman’s science fiction commemorations, in a different way. Those associations are far more expectable and commonplace given the inter-performative trading history I have been tracking—in actuality, they are extensions of that history. At the same time, a notion of those associations as simple innocent externalities to the outcomes of science is put into question.

So how are such phantasms mobilized, recirculated, or resisted in the communicative and technical practices of palaeontologists today, at the end of the twentieth century? What appears continually to be posited as the key distinction between popular and scientific



worldmaking is that the latter is highly “systematic”. In effect, scientists shift attention away from the scenario to the detail of its constituents and back again. To track this relationality, I offer another set of sketches.

## Palaeontological Scenarization

One case of the managing of scenario-making can be seen in the way in which dinosaur palaeontologists position themselves in the actual working interface with artists. In an article on artistic restorations, Dale Russell implies that artists and scientists undergo an important set of highly productive epistemic exchanges in the making of a painting, sculpture, or diorama:

*In technical palaeontological writing unconstrained speculation is not encouraged. Artistic restorations of dinosaurs and their environments nevertheless require a use of inference not unlike first-order approximation in astrophysics. Questions are posed during this process that provoke reflection. A major benefit of artist-scientist collaboration, these avenues of thought should not lightly be dismissed for they approximate the self-correcting exercise lying at the root of the advancement of knowledge.<sup>39</sup>*

But these are not simply epistemological issues, as Russell seems to suggest in his point about the relation as a sort of “self-correcting exercise”. They are equally articulation issues in that they bring into coordination specimens, technical writing, art-restoration techniques in modeling and painting, the artist and the scientist, and an anticipated use for the finished art piece as museum display, popular or technical book illustration, film animation and so forth. All of these elements impinge in the making of the two- or three-dimensional scene of action. In the process, something else takes place: “first order approximation”.<sup>40</sup>

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<sup>39</sup> Russell 1987:115

<sup>40</sup> *The Random House Dictionary* (Stein (ed.) 1983) defines mathematical and physical “approximation” as: “a result that is not necessarily exact but is within the limits of accuracy required for a given purpose.”





Nonetheless, Russell strikes the cautionary note on the need for palaeontologists to avoid “unconstrained speculation” in their technical writing. By having artists *produce the vision* in the literal sense, scientists do not have to take as much responsibility for that which they might really be imagining or speculating upon. As such the artist is also cast into a role amounting to that of a scape-goat for scientists who may then play out their personally held phantasies of past-world scenarios. Russell takes the curious position in the following quote of a highly literate blind man, suggesting in effect that he has no vision without the artist:

*Artists are the eyes of palaeontologists, and paintings are the window through which nonspecialists can see the dinosaurian world. Palaeontologists usually do not paint and artists do not usually read palaeontological treatises; teamwork can be advantageous. A palaeontologist must discipline himself to assemble all of the available data needed and thoughtfully translate it from a technical vocabulary into the vernacular, and the artist must discipline himself to be palaeontologically (not compositionally) obedient. Words often fail, and a joint effort making scale models can replace words as a means of communication. When models are based on scale skeletal reconstruction it is amazing how the anatomical individuality of an extinct creature emerges.*<sup>41</sup>

Of course it seems quite implausible that there would be such a radical difference between the palaeontologist and the artist. Russell deliberately overstates his position as visually blind, as though he has no conception of what a dinosaur looks like, and as though that is what allows him to discipline the artist, “the palaeontologists eyes”. Likewise, he understates the abilities of artists—most of whom have undertaken very detailed technical and personal study of skeletal anatomy and animal motion, which might indeed entail reading of palaeontological treatises.<sup>42</sup>

Tom Mitchell radically reverses the relation in Russell’s comment suggesting, “If you want to think of the art-science relation in terms of body parts, a better comparison would be to think of the scientist as the eye and the artist as the hand. Their collaborative relation

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<sup>41</sup> Russell 1987:117.

<sup>42</sup> Personal communication with palaeoartists Mike Skrepnyk, Brian Cooley, Steve Czerkas, Jan Sovak, Manfred Tolman.



would then be more like ‘eye-hand coordination’.” Yet even Mitchell ignores the more nuanced dimensions of what Russell is saying and doing here, and what commonly takes place in the relationship.<sup>43</sup> Russell points out “Words often fail”, and the communication becomes a visual one. Reciprocally, one palaeoartist Douglas Henderson notes that envisioning relies on language in the strict sense: “Correspondence and discussions with willing palaeontologists prove the best opportunities for instruction and guidance.”<sup>44</sup> The scientist and the illustrator exchange their matter-of-fact phantasies and their phantasmatic facts by all the communicative means available to them.

Russell gives the impression that “envisioning” does not take place in palaeontology, and so displaces the critique of unconstrained speculation and imagining! By taking this guarded stance in relation to art-making, and by then allying his socio-technical network with those of astrophysics and exobiology, Russell has articulately secured his credibility in producing the “thought experiment” mentioned previously, his speculative, phylogenetically convergent “Dinosauroid”. If his palaeontological networks may have failed to be supportive, Russell’s astrophysical network would correct for this—and his collaborative phantasmatic being could then be fully wrought, its autonomy secured, along with Russell’s professional position. Predictably enough, such an authenticated vision of an otherworld alien would garner the attention of mass media instruments from populist science publications to pulp fiction publications like *National Enquirer*.

Russell’s case may seem exceptional, but technical scenarization does indeed occur routinely in the most mainstream and prosaic of palaeontological practices, and here a relatively “constrained speculation” is quite fully allowed. An example is a fairly typical sort of descriptive article—as in the case of Jason J. Head’s 1998 publication in the *Journal of Vertebrate Paleontology*, “A New Species of Basal Hadrosaurid (Dinosauria, Ornithomischia)

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<sup>43</sup> Mitchell 1998:108.

<sup>44</sup> Henderson 1997:167



From the Cenomanian of Texas”.<sup>45</sup> The title alone is characteristic of the totalizing temporal-spatial world restoration: the species is *new*, it is *basal* (meaning ancestral in evolutionary terms), its biosystematic location is signaled, its geological time facies is noted (Cenomanian), and the location of where the dinosaur’s specimens were found is given. The very creature described is prosaic enough, a duck billed dinosaur, the kind of dinosaurs I have often heard palaeontologists jokingly refer to as “cows of the past”. While some of us may be very fond of cows, they rarely get the dramatic play that lions, tigers, sharks and king tyrant lizards do.

Head’s article describes two specimens consisting of “disarticulated skull and isolated postcrania” (with illustration). Through an intricate set of citations and correlations, the article leads the reader through: a) previous technical sources on the taxonomic group under scrutiny; b) the stratigraphic situating of the specimen (with illustration); c) its biosystematic positioning and relationships within the *Dinosauria* (with chart); d) the reconstructed view of the skull (illustrated); e) cladistic analyses of this hadrosaur (with cladograms); f) proposals on the creature’s functional morphology describing how it would have moved in life, etc.; and g) suggestions of its biogeographic distribution in the world over time (with contextualizing maps showing positions of continents in Albian, Cenomanian and Turonian-Santonian times). Each step takes the locally-known fossil material and scales it ever up via a universal time-space pictorialization procedure. A selection of the illustrations aiding this cumulative world-production is presented on the following page. [Fig. 17, page following]<sup>46</sup>

In short, Head has systematically “built-up” the scenarization of this creature—from previous systematic phantasies to revised systematic phantasies—in bounded time/space, right down to the way the animal moved, approximately what its face—i.e. skull—looked like, where it lived in the ancient world, what its evolutionary placement and history was.

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<sup>45</sup> Head 1998.

<sup>46</sup> Figure 17, Source: Head 1998. Illustrations reproduced with permission of Jason Head.

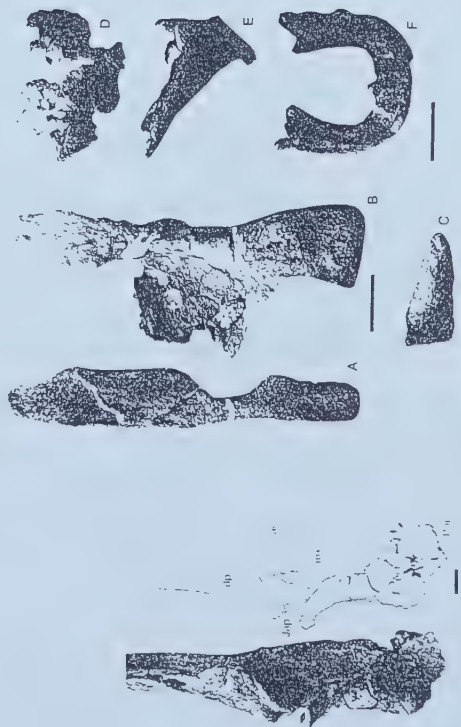
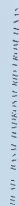
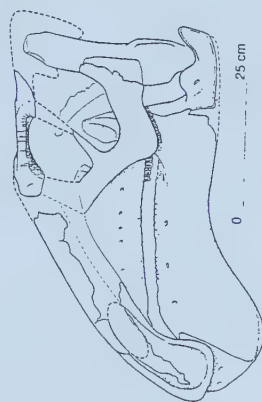
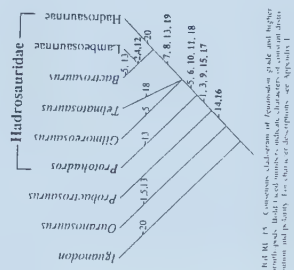




# Performing the Mesozoic Time/Space of a Dinosaur in a Technical Paper



TABLE 2. Mean values of NMII and distributions of elements of NMII, 1982. Values within the parentheses are the corresponding theoretical values of the  $\chi^2$  test

[illegible]

**FIGURE 15.** Consensus cladogram of *Leucostomus* side and higher morpho-species. Bold faced numbers indicate characters of unusual distribution and polarity for which our descriptions see Appendix 1.

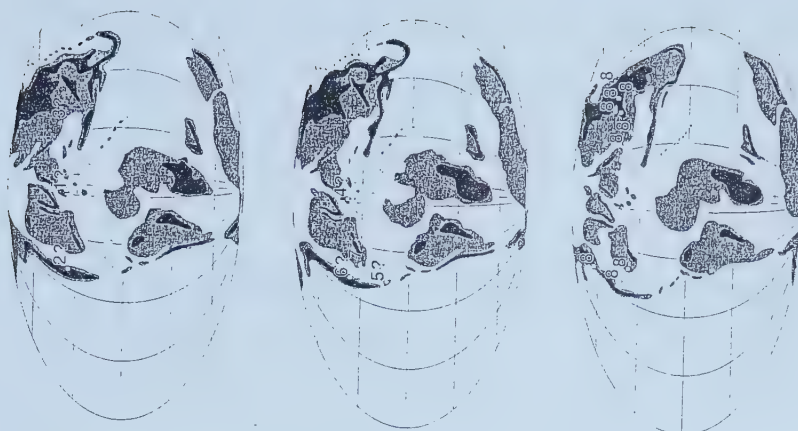


FIGURE 17. PGIS (Ross, 1991) paleomap reconstructions show reported hadrosaurid occurrences during: A, Albian (100 Ma); B, Cenomanian (95 Ma); and C, Turonian-Santonian (represented by Cretaceous, 88 Ma). All reconstructions represent maximum transgression highlands. Shading indicates from lightest to darkest: shelf seaward, lowlands, highlands. For specific records of hadrosaurid occurrence see Appendix 3.



And this is all done by mobilizing graphs, maps, an array of fossil elements, photographs, cladograms, and a whole lot of citations of preceding technical papers. Each step is conjoined to produce completion, a sense of totality from the smallest feature of morphology of a single bone to the position of the continents around the globe over a period of 12 million years!

This is typical of palaeontological world-making as published in leading scientific journals. On the surface of it, it is very difficult to see any sign of Hollywood-style or any other sort of cultured phantasies in action. As one might expect, Head didn't cite a single Willis O'Brien film, nor any Charles Knight paintings, and yet he produced for the reader through texts and suggestive graphics a vision of his newly named genus and species *Protohadros byrdi*. But finished, peer-reviewed articles where popular culture influence or "unconstrained speculation" is discouraged would be an unlikely place to find such an admission. For that, I have had to look elsewhere.

### *Purifying Life's Relations—Systematically*

Contemporary dinosaur palaeontologists suggest their work is relatively free of phantasies. This is achieved through the doubled action of focusing on technical detail, and then making claims that prescriptive story-telling and subjective interpretation have been cast out of the scientific enterprise. The case I present which suggests how performative, phantasmatic dimensions of the Mesozoic guide the envisioning of scientists is that of the methodological turns of the last decade in the area of "systematics". Systematics is the organization of species diversity in order to reconstruct evolutionary history—biology's genealogical ordering of life.



The visual outcome of contemporary biosystematics is a new sort of evolutionary tree diagram known as a ‘cladogram’, which differs somewhat from earlier tree diagrams. This revised technique, called “cladistics” or “phylogenetic systematics”<sup>47</sup>, is touted by many. Eight years ago, it was a rarity to see a cladogram in the dinosaur talks at the Society of Vertebrate Palaeontology annual meetings. Today, slides with elaborate cladograms grace almost every platform presentation, and new groupings of dinosaurian kinds are paraded out seemingly endlessly. (Incidentally, the cladistic group gaining the most platform time is *Theropoda*, which include the likes of *Tyrannosaurus rex* and Jurassic Park famed ‘clever’ dinosaur *Velociraptor*).<sup>48</sup> The AMNH has gone so far as to fashion a \$30 million palaeontological gallery, which opened to the public in 1995, based on this ordering.<sup>49</sup>

AMNH scientists laud cladistics as “a new, more rigorous approach to systematics, organizing animals into groups based on the uniquely evolved characteristics they share.”<sup>50</sup> The key here is that only unique, evolved anatomical characteristics—e.g. the presence of hair, feathers, wrist bones, a backbone, etc.—shared amongst a group can be used to diagnose their true, natural kinship, their common membership in a “clade”, literally, a ‘branching’ group descended from one common ancestor, a genetic lineage. This contrasts methodologically with the older procedures, known as “evolutionary systematics”, which took into account not only shared derived characters, but also possible ancestral characters, a mix of possibly adaptive analogous characters, and ecological information. The so-called “paraphyletic trees” they produced, were based on what Ernst Mayr called “grades” of variation, opposed to the new “monophyletic trees” based on narrowly delimited “clades”. The argument of ‘cladists’ is that their technique is more “objective”, based on real

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<sup>47</sup> Two very succinct articles discussing cladistics are those on dinosaurian cladistics by Paul Sereno (1990) and Colin Patterson (1980).

<sup>48</sup> Palaeontologist Andreas Hansen has told me that these two highly popularized dinosaurs remain relatively poorly studied! It is other members of *Theropoda* which have been the subject of intense investigation, including such creatures as *Baryonyx*, *Allosaurus*, *Deinonychus*, *Dromaeosaurus*, *Tröodon*.

<sup>49</sup> cf. Gould 1993.

<sup>50</sup> Norell, Gaffney, and Dingus 1995:xii.





morphological ‘evidence’, it isolates truly ‘natural’ groups, it is driven by strict rules of analytic consistency, and so it is less prone to arbitrary or subjective choices of spurious morphological characters on the basis of neo-Darwinian or other sorts of presumption. Figure 18 is an illustration of a phenogram showing relations of major lineages of Hadrosaurian dinosaurs, while Figure 19 is a rendering of the cladistic relations of the entirety of the *Dinosauria*. [Fig. 18 & Fig. 19, pages following]<sup>51</sup>

In his influential 1990 polemic in a major collection on dinosaur systematics—a paper which has also helped position him at the forefront of dinosaur palaeontology—University of Chicago researcher Paul Sereno noted how cladists like himself, “pride themselves in admitting as little evolutionary assumption as possible into their systematic methodology”<sup>52</sup>. Sereno uses the language of purification, admitting at the same time, that “few practitioners, if any, would claim that cladistics has cleansed phylogenetic analysis of subjectivity,” admitting the sole exception of how, “Distinguishing the descriptive subunits of morphology...involves subjective decisions.”<sup>53</sup> But the implication all the same is that some things are cleansed away, most notably adaptationist story telling. While this politically interesting dismantling of progress narratives or the displacing of humans atop a now dissolving evolutionary ladder may be aided in this reordering of life, I am rather skeptical about the extent of ‘cleansing’ going on here. Where did the stories go? What happens to imaginings, fetishistic interests, scenarios? Do these evaporate away? Andreas Henson, an inveterate cladist himself, provided what may be a partial answer to this in one discussion we had together:

*We no longer have people at scientific meetings standing up and telling imaginative if lovely stories about the evolutionary relationships they believe to have found...instead they present cladograms based on rigorously defined sets of synapomorphies.[i.e. shared,*

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<sup>51</sup> Figure 18 (‘phenogram’) and Figure 19 (‘cladogram’), Sources (respectively): Simpson 1983:38, Dingus book Dingus and Rowe 1998:171.

<sup>52</sup> Sereno 1990:9-20.

<sup>53</sup> Sereno 1990:17.







derived features<sup>54]</sup> *Delivering scenarios is the next step—once you have a cladogram, you can go, if you’re so inclined, and look at features in a scenario, but there’s an important theoretical distinction there, that you have a testable hypothesis of phylogeny, whereas a scenario, by its very nature, is less testable.*

The effect here is that explicit story-telling, scenario making, and such phantasmaties have simply been displaced out of the process of systematics, to another locale. This is the same sort of displacement or denial that Dale Russell made when suggesting the “artists are the eyes of palaeontologists”.

To use a point on scaling from Marilyn Strathern<sup>55</sup>, all we need to do change positions, step back, to effectively “shift context”, in order to see where and how the action of cladists is fully engaged with the phantasmaties of culture, self-interest, narrative, desire, and so on. I have already suggested how a fairly typical palaeontology article entails scenarizing tendencies. I would like to attempt a different sort of context shift in the following sketch, which simply relocates cladistic practices to recognize them as performative practice.

In a charged talk at the Society of Vertebrate Palaeontology meetings three years ago, Paul Sereno, with a projected barrage of aesthetically appealing, computer-generated cladograms and character tables, announced the discovery of the world’s most primitive dinosaur, the earliest specimen of the natural group *Dinosauria*, named *Eoraptor*. He declared proudly to the excited assembly: “I fully believe that what we have here is the Mother of all dinosaurs”. Suddenly, in this simple remark, “the mother of all dinosaurs”, we have moved into a different register encountering Sereno’s phantasmatic of origin, his “phantasmatic kinship”<sup>56</sup> which he calibrates to his phantasmatic of biosystematics. The genealogy of dinosaurs for Sereno is a gendered one, and it begins from a feminized source

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<sup>54</sup> Synapomorphies are “shared derived characters” and are used to define “monophyletic groups, groups whose members share the biological (eg. morphological) character, and who in turn share that character with a common ancestor, thus indicating a phylogenetic lineage.

<sup>55</sup> Strathern 1995:11.

<sup>56</sup> There is at least one book bearing “phantasmatic kinship” as its title, Alberto Eiguer’s *Phantasmatic Kinship: Transference and Countertransference in Psychoanalytic Family Therapy*. The volume is a family counseling book by a psychotherapist, drawing upon the Lacanian notion of “phantasmaties of identification.





of reproduction, the maternal. This is a literal parallel to Doyle's Central Lake Gladys in his *Lost World*, the very font of his otherworld creation.

Extending this sketch, Sereno's investment in building cladograms has other dimensions, not the least of which is that it suggests that there are single common ancestors to be found in every lineage—as in the example of “Mitochondrial Eve” the counterpart “mother of all humans”, to *Eoraptor*, the “mother of all dinosaurs”. Seizing this potentiality has aided Sereno in his research funding successes, including support from MacDonald's Corporation (on which the familial, Bambi-like search for the missing “mother” would not be lost), in addition to major national and international science funding agencies. This has enabled him to travel to distant locales—Mongolia, Patagonia, Niger—and his journeys of discovery have in turn become the topic of several television science adventure documentaries.

From a very different position and with altered commitments, Paul Sereno's cladistics-rationalized work is as articulate as Osborn's had been at the beginning of the twentieth century—even though it does not mobilize Osborn's disturbing racial logics. Sereno's astuteness at marshaling, and indeed defining, many of the purification procedures of dinosaurian systematics, has calibrated so well with his globe-combing fossil discoveries as to generate an articulate story of manly scientific achievement, if not indeed manly conquest. In turn, this has even transformed Sereno himself into something of a specimen for some rather different systems of classification. In 1997 Sereno was named by *Esquire* magazine as one of the “100 Best People in the World”, not long after being chosen as one of *Newsweek* magazine's “100 people to watch for in the next millennium” and the third and perhaps crowning laurel, as one of *People* magazine's “50 Most Beautiful People in the World”.



Though Stephen Jay Gould<sup>57</sup> has pointed out how the multi-linear, bush-like envisioning of cladistic trees undoes older progressive representations of *Homo sapiens* as the most advanced form of life, phylogenetic systematics have nonetheless helped to define one of the ultimate forms of human life, namely, the cladistic dinosaur palaeontologist. In delivering new dinosaurian kinds, this cultural-scientific network has provided ample rewards in return. Sereno has performed the Mesozoic differently, but with as much finesse as Osborn had done decades earlier. In this revised chain of articulations, systematics has traded complexly with phantasmaties, advancing and transforming Sereno's interests, while also helping to secure cladistics as the proper procedure for establishing the order of natural dinosaur kinds.

### *The Rhizomatic Non-System: Recalibrating Systematics and Phantasmaties*

Dinosaur resurrections are calibrated through an economy of imaginings conducted overwhelmingly by male players. Other dimensions of phantasmatic identification include practices of scientific nomenclature. There has been a recent tendency to assign feminine names to dinosaurs—e.g. the technical name *Maiasaura* the 'good mother lizard', or the vernacular 'Sue' the \$8 million T. rex sold at Sotheby's auction in 1997. There are continuing cases of the inscription of corporate and mass media in species names—e.g. *spielbergii* is now a dinosaur sub species, paying homage to the filmmaker following his donation to Chinese researchers who collected the type specimen. Popular monsters make their way into scientific naming as in the case of *Gamera* a fossil turtle curiously resembling one of Godzilla's giant enemies from which the name was derived.<sup>58</sup>

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<sup>57</sup> Gould 1993.

<sup>58</sup> Brinkman, personal communication.



Doyle *Lost World* references were reinscribed ironically in the naming of a new South American specimen of a Spinosaurid dinosaur that has been particularly tricky to position cladistically. The officially accepted name simultaneously indexes a string of ironies including the phylogenetic annoyance, the fictional-factual locale of South American lost land discovery, and the memory of Doyle's counter-ego, the pompous professor who so bravely conquered the hidden plateau of hidden mysteries: *Irritator challengerii*.<sup>59</sup>

Yet another example of phantasmatic expression is manifest in the seemingly unquenchable thirst to collect and work on the biggest and meanest of meat-eating dinosaurs—a legacy that is rooted historically in Osborn's inordinate fascination with *Tyrannosaurus rex*. Joking about such fixations continues inside (as well as outside) scientific practices, as was the case at a recent SVP meeting with Dr. Robert Bakker, the scientist on whom Spielberg based a character in his *Lost World* film. (Spielberg has the character devoured by one of the beloved carnivores which the actual Bakker studies fanatically in fossil form). During a platform presentation on the functional morphology of Jurassic meat-eaters, Bakker noted a fact: "Over the last two years, no less than eight new specimens of what may be the biggest meat-eating dinosaur ever have been announced in these meetings—no doubt the continuing contest to show that my blank is bigger than your blank." [Bakker's editing]

As well, cladistics in itself can be seen merely as an altered form of narration, and rather than following conventional narrative patterns of plot development, works instead by the logics, as Robert O'Hara puts it, of "tree-telling".<sup>60</sup> We might also consider how systematics are phantasmatic projections in themselves. Andreas Henson explained to me how one leading old-school evolutionary systematist at a prominent North American

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<sup>59</sup> My colleague at the ROM, Dr. Andreas Henson was studying this specimen at the time of writing. Sues has relayed to me many times his delight in these practiced jokes in systematic palaeontology, a source of relief no doubt to the superficially drab and serious landscape of systematic science.

<sup>60</sup> O'Hara 1992:135-160.





University adopts cladistic method with the proviso (paraphrasing), “I really don’t believe in the stuff...I only use it to communicate with cladists”. This palaeontologist is strategically deploying the systematics of his rivals phantasmatically. Many dinosaur palaeontologists work with cladistics in a ‘flavour of the month’ fashion, still maintaining their more fully imaginative engagements simply because, as the American Museum’s Mark Norell summed it up, “most people who study dinosaurs are interested in the more speculative aspects of dinosaur biology.”<sup>61</sup>

One undercurrent through this discussion has been to offer a frame for making sense of contemporary refigurings of life and kin-making practices as, for example, in proliferating expressions of genealogy, as in the family tree illustration of human-dinosaurian kinship by Gary Larson shown in Figure 20. [Fig. 20, page following]<sup>62</sup> Larson’s lampoon diagram is as much a phantasmatic-systematic articulation device as any cladistic tree. In summary: agendas, visions, stories, pre-conceptions, interests, politics, fetishisms, formalisms, desire—all of these remain—no matter how hard the cladists and others work to eradicate these so-called ‘contaminants’.

Might phantasms, then, be thought of not as something ‘outside’ the practice and contaminating it, but rather as something pervasive to it—a rag-tag but necessary fabric of systematic science? Phantasms—here seen in the form of worlds made, beings made, or systems made for that matter—could be seen as “rhizomatic”, to borrow the botanical analogy from Gilles Deleuze and Felix Guattari, who write:

*The principal characteristics of a rhizome: unlike trees or their roots, the rhizome connects any point to any other point, and its traits are not necessarily linked to traits of the same nature; it brings into play very different regimes of signs, and even nonsign states. The rhizome is reducible neither to the One nor the multiple. . . . It is composed not of units but of dimensions, or rather directions in motion. It has neither beginning nor end, but always a middle (milieu) from which it grows and which it*

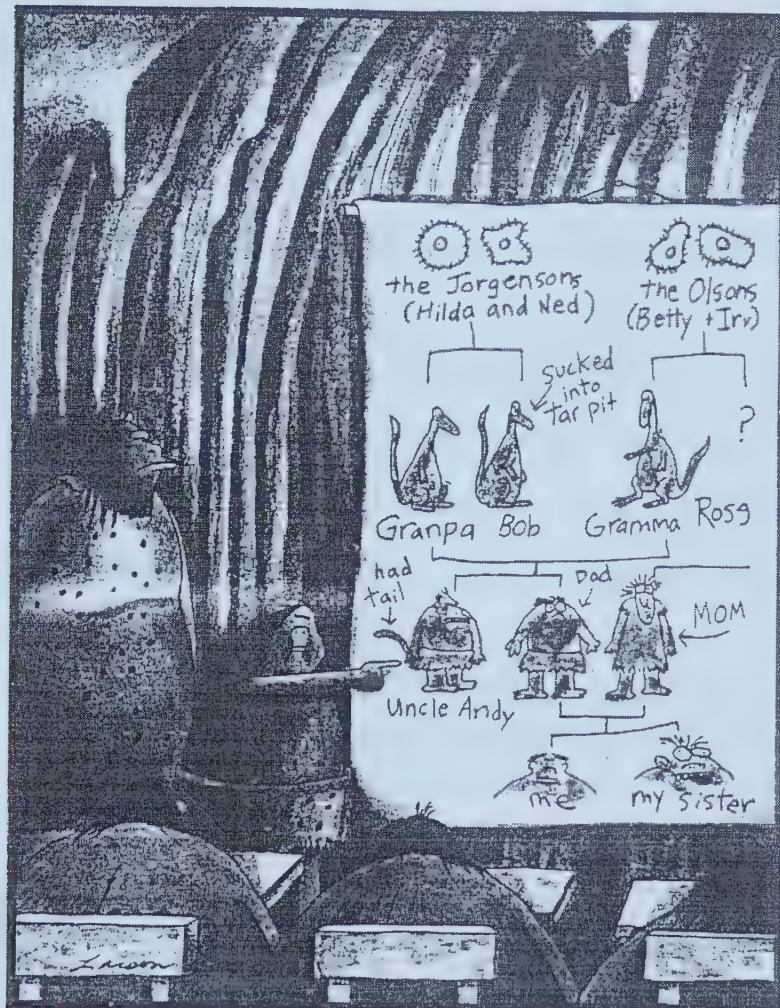
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<sup>61</sup> Norell et al. 1995:xiii.

<sup>62</sup> Figure 20, Source: Larson tear-off calendar.



**Figure 20** (p. 124a)  
Gary Larson's Genealogical Tree of Human-Saurian Ancestry  
Source: Gary Larson tear-off calendar (n.d.).



Dirk brings his family tree to class



*overspills*.<sup>63</sup>

Rhizome suggests a continuously available tissue of connecting points, each of which may be a point of trading or resistance. The regularity of the forms traded and struggled over at each node signals as much as anything, what may be a productive dimension of that which we call “culture”.

It is in this spirit which Emily Martin also borrowed “rhizome”, as a useful term suggesting how, with this figure one “...can trace the convoluted discontinuous linkages between what grows inside the castle walls [of science] and what grows outside”, which is precisely the sort of public/scientific, literary/technical movements I have been attending to here.<sup>64</sup> Martin used the analogy to aid in speaking of how certain action-eliciting, bodily-training notions—of immune system “flexibility” and “adaptability”—circulate widely across seemingly disconnected social locations, such as the management regimes of large corporations, the rhetoric of practitioners in clinical immunology, and talk of infectious diseases among everyday folks in America.<sup>65</sup> She noted broadly the sorts of ramifications that might be occurring:

*To return to my examples there is no necessary spatially contiguous structural linkage between the corporate trainer I described and contemporary immunology. The links even if they could be discovered, might turn out to be ephemeral, accidental, transient. The CEO of the training company might have learned about the current understanding of the immune system from any number of media—print or film—as easily as from his own allergy clinic or from the process of deciding whether to vaccinate his own children.*<sup>66</sup>

Following from what Martin initiates, what I try to bring into play is how a pervading and mutable sense of “phantasmatics” presents some characteristics of what is extended, circulated, and may provide the occasion for “ephemeral, accidental, transient” linkages and exchanges. In this sense, ways of ordering plus the resulting orders, and ways of world-

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<sup>63</sup> Deleuze and Guattari 1988: 15, (&117).

<sup>64</sup> Martin 1997:138.

<sup>65</sup> See her extensive findings in Martin 1994.

<sup>66</sup> Martin 1997:145.





making plus the worlds made, come into intricate interplay in the circulations taking place. Public and technical knowledges through dinosaurs and Mesozoic performativity are fully ramified in the rhizomatic sense of being convoluted, distributed, oddly connected. To reiterate what I stated in the preceding chapter—the performative nexus is widely distributed through the performative network.

What might a rhizomatic sense of how phantasms simultaneously underwrite and permeate systematic scientific work mean for ethnographic practice? Evolutionary or phylogenetic genealogies might be understood as phantasms in a systematic mode—a register of knowing amplified by scientific practice to authorize itself as different from public practice. Looking up close at systematizing practice, phantasms animate the production of new groups and relations, or sustain fixations (as with meat-eating dinosaurs). Drawing back, they infuse those productions located in institutional, market, and other public culture situations through which science and its entities are constituted and extended. Working in these two registers—phantasms as a requisite mode of systematics, and phantasms as multiplicities of rhizomatic connections—attention might be paid to those multiple exchange points, to see how system overwrites or interdicts phantasm, or vice versa, and to see how the coordination of exchanges amplify or cancel out effects. The task, then, is to identify the performative nexus (which incorporates action, fantasies, materializations, mediations), and to then track the variability of its use wherever it appears.

By risking this consideration of phantasms, I have been attempting to incorporate more resolutely that which tends to get left out of analysis—the juicy disruptive stuff, the jokes, anxieties, angers, and prohibitions—acknowledging instead their rhizomatically distributed presence. Desires, scenarios and fantasies of the biologist or the sponsoring corporate shareholder may be brought into play, as much as those of a girl or boy transfixed by Barney, the dancing, pantomime, saccharin-purple dinosaur of American television fame.



Contouring the agency of such ever-present nature-forming interests is the very stuff which contemporary science studies seeks, willingly and brazenly, to take upon itself.



# Neocolonialism, Culture and Mesozoic Performativity

In one of its promotional posters, Toronto's Royal Ontario Museum offered up the ironic slogan, "We discovered them long before Hollywood did". [Fig. 21, page following]<sup>1</sup> By now, it should be clear that this is a questionable claim and that a much more convolute irony—one not intended by the ROM's creative consultants—is carried in such an expression. It was indeed Hollywood's predecessors in the spectacle industry which equally aided the "discovery" of dinosaurs—and by means of a particular technology of materialization. Throughout this century, and even since 1854 when imaginatively reconstructed dinosaurs ended up on an island in one corner of London's Crystal Palace park, dinosaur palaeontology has attained and augmented its contours, purchase, and durability by articulating its time/space logics with public phantasies. The spectacling of past-world-making in association with an ever-increasing repertoire of fossil specimens and kinds has inventively performed palaeontology's topical location known as the Mesozoic, the Secondary Formation, etc., into material, or at least, quasi-material being. Standing the authorized phantasies of Osborn, Simpson, Sereno and others against the novelistic versions of Doyle, Burroughs, or the reconstructively surpassing phantasies of Spielberg and Crichton<sup>2</sup>, this highly cultured *materialized imaginary* of nature resolves to

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<sup>1</sup> Figure 21, Source: Royal Ontario Museum, Image used with permission of the Royal Ontario Museum, Photograph by Brian Noble.

<sup>2</sup> Michael Crichton wrote the original novel *Jurassic Park* (1990) on which the film (1993) was based, and subsequently the novel *The Lost World* (1995) which was the basis for Spielberg's sequel (1997).

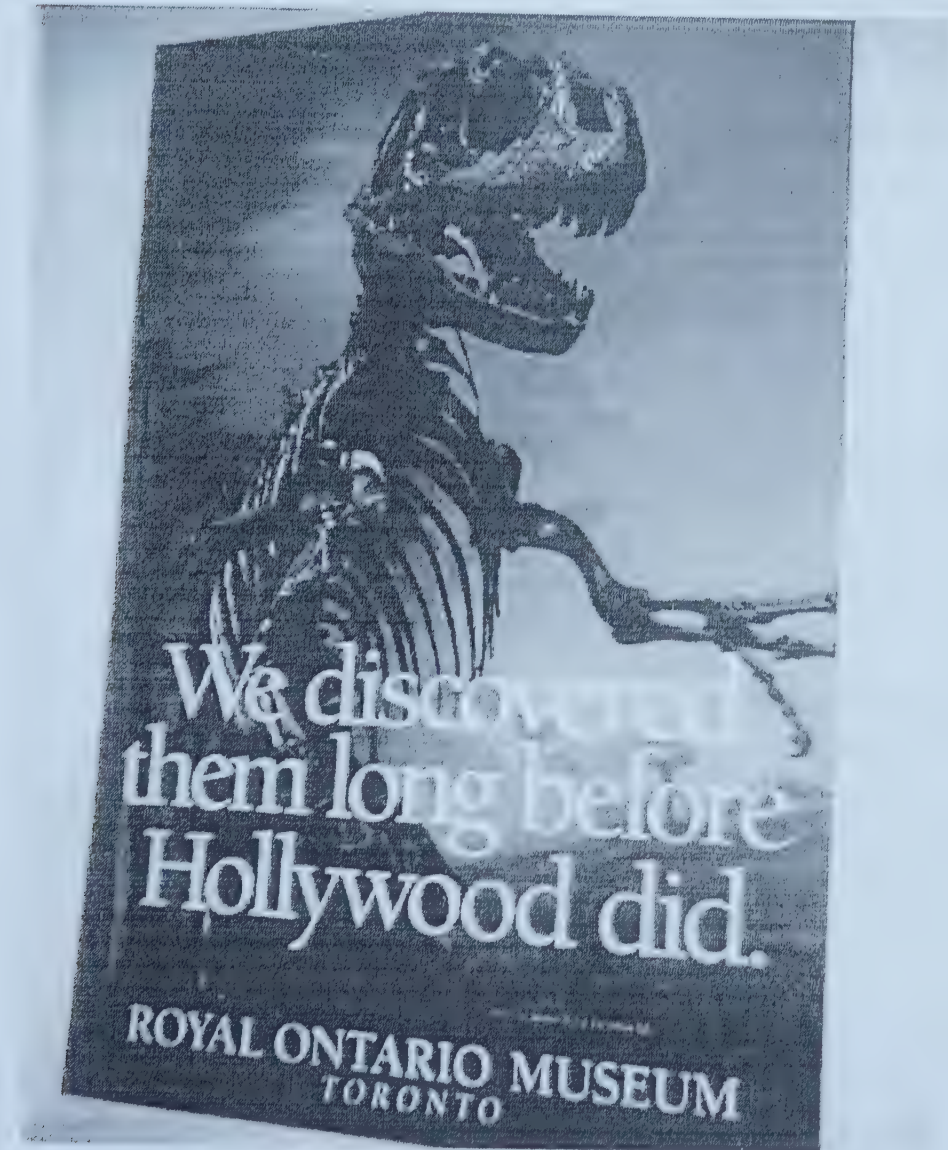
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**Figure 21** (p. 128a)  
**ROM Dinosaur Poster**

Source: Royal Ontario Museum, Image used with permission of the Royal Ontario Museum, Photograph by Brian Noble.





some extent, revealing how it conjoins public culture with science—confusing any distinctions between society and nature.

Of anthropological interest, this collapse of phantasy and materiality via the Lost World/Mesozoic is indicative of *cultural action*. This action draws upon both human and non-human resources both in technical-scientific and public domains. In order, however, to move away from the dizzying complexity of meanings ascribed to the term “culture”<sup>3</sup>—meanings which tend to form as an oppositional relation to the term “nature” if not simply as that which occurs ‘outside’ nature—I have found it much more productive *to downplay the term culture*, and instead to focus more on the workings of performativity. *Performative action* can equally entail human and non-human actors, as well as the larger effects and products of their heterogeneous interactions—lost worlds, panoramas, Mesozoics, landscapes, parks, ‘frontiers’, museum dioramas.<sup>4</sup> In this approach “culture” or “nature” can then also be seen as rather totalizing effects which are fed back into the human and non-human actions to further extend or modify their effects.

I can now venture a provisional statement based on propositions introduced and discussed in the last chapters:

*The time/space of the Mesozoic/Lost World is a performative nexus produced by a network of human and non-human agencies acting in relation to one another. The transformable reality of the Mesozoic/Lost World precipitates in the form of a constraining, shiftable complex of phantasmatings, systematics, and materializations.*

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<sup>3</sup> See especially: Kroeber and Kluckhohn 1952; Williams 1985:87ff

<sup>4</sup> Donna Haraway (1997:42-3) points out forcefully how in the contemporary moment, some new sorts of space/time organizers (or disruptions for that matter) are at work. The more literally geographic forms I’ve referred to are being replaced, or at least humbled, in a rapidly expanding lexicon of meaning-*containment* and meaning-*generation* devices, as Haraway remarks, “the chip, gene, bomb, fetus, seed, brain, ecosystem, and database are the wormholes that dump contemporary travelers out into contemporary worlds.” Sarah Franklin has demonstrated how the gene and DNA now operate in the commercial public imaginary today just as effectively as nature and the landscape scene did in the past, citing in particular BMW’s use of DNA as the thematic for advertising a new line of their sports and luxury cars. In short, Franklin suggests that the semiotic of the invisible genetic code, often referred to simply as “life itself”, is displacing the more venerable concepts of ‘nature’ and ‘life’. (Sarah Franklin, “BMW’s DNA” Conference Presentation 1998, Annual Meetings of the Society for the Social Studies of Science, Halifax, N.S.).



*Elements of that complex permeate and are distributed across the network of agencies producing or interacting with the nexus.*

The Mesozoic/Lost World, ostensibly forms of nature, now also appear symmetrically as cultural forms, significantly characterized by colonial logics. The Mesozoic/Lost world is neither strictly ‘of the world’, and neither is it purely representational. It is a nexus, joining and blending things and their representations, humans and their acts of representing, specimen and spectacle, phantasy and system, etc. The Mesozoic/Lost World nexus is located in and provides a culturing set of linkages for the larger action I refer to as the specimen-spectacle complex. That complex is most familiar in the work and action of natural history museums.

The Mesozoic/Lost World coalesce as a nexus, a recurrent, performance-constraining zone of human and non-human interaction, which align the animalian with the *place in the making*, by bounding it in as natural, and then align the human with that which only *encounters the place*, but is never fully of that place.<sup>5</sup> Most importantly — or at least most anthropologically — this bounded natural geography could not have come into being without *culture*, in the sense of being made and remade — that is, of being fabricated. Consideration of performative action, then, is a means of getting at the multiplicity of human and non-human agencies bearing upon the resulting outcomes and the repertoire of entities which it distributes and aligns. In this sense *culturing* — to use the active, verb form of this vexing yet indispensable term of anthropological practice — is the distribution of entities and meanings by performative action or, in Michel Callon’s terms, by “performance”.<sup>6</sup> In historical terms, Mesozoic performativity is a mode of natural-cultural delineation which has continued through the twentieth century, moving freely between public-literary and scientific-technical venues, freely incorporating the informing characteristics of each.

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<sup>5</sup> In this sort of otherworld, the human is the alien intruder. In heterogeneous networks, the human and non-human constitute the otherworld.

<sup>6</sup> Callon 1998:23.





## Some Workings of Mesozoic Performativity

Beyond these general statements, however, I can now also provide a working outline of Mesozoic performativity on the basis of cases presented in the preceding chapters. In no particular order, several additional propositions about Mesozoic performativity can be offered:

- It allows the circulation and merging of phantasmatic and systematic knowing.
- It simultaneously incorporates phantasies (e.g. stories, scenarios, imaginings) and matter (e.g. fossils, sediments).
- It also relies on technical objects, certain tools and machines for its production, effectively rationalizing that machinery and the resources mobilizing it. The examples presented have been dioramas, reconstructed illustrations, film animation, etc. It is at the nodes of interaction with this machinery that other human interests impinge.
- It reinforces the sense of the reality of the past by deploying a metaphors of travel, so converting the past into a part-real, part-imagined place.
- It is a potent locus or nexus of public and technical relations, constituted within a heterogeneous network of human and non-human actors.
- Its outcome—the time/space geography of the Mesozoic—is taken as a matter of fact, a matter necessitating journeying as a means to obtaining knowledge.
- Attention to the Mesozoic as “chronotope” (after Bakhtin) requires the acknowledgment of scenarios, stories, visions, and metanarratives as constitutive elements of the action of science, down to the most technical details of that action.
- Many scientists use a rhetoric and technique of bracketing, suggesting that such performative, or phantasmatic action lies outside of what actually counts as science.



- Nonetheless, such bracketing can be recognized as a kind of register shift, and the phantasies of this sort of performativity still structure and animate systematic and technical dimensions of scientific knowing.
- Mesozoic performativity mobilizes the activities of various actors moving to and from the time/space geography, as well as the creatures and objects which are encountered in the geography.
- It tends to be plastic enough to allow for the altering of its constituents—those who inhabit the geography—gradually over time, consistent with shifting interests and material forces.
- Nonetheless, it is so effective at organizing stories, embodying social actions, and entailing specific sorts of matter (fossils and prehistoric creatures), that it also tends to remain relatively stable over longer periods of time. It becomes, in effect, an historical conduit for the repetition of certain natural-cultural logics.<sup>7</sup>
- Mesozoic performativity is grounded in the colonial logics of traveling to exotic realms by a privileged knower. Its limitation here, lies in how this reinstantiates what amounts to a colonialist set of practical logics, a version of what anthropologist Michael Ames calls “vestigial colonialism”.<sup>8</sup>

Another anthropologist, Nicholas Thomas, refers to this reproducing and embedding of colonial logics in contemporary practices and matter with the term “colonialism’s culture”. He notes how it is manifest in such contemporary filmic expressions as the Kevin Costner film *Dances with Wolves*, which plays on romantic ideas of native American spirituality, or in Francis Coppola’s *Apocalypse Now* which borrows directly on Conrad’s novel *Heart of Darkness* similarly dramatizing a psychopathology of the encounter with the Other.<sup>9</sup> The exotic othering and colonial dimensions of Mesozoic performativity in scientific and in public practice effectively expands the repertoire of colonialism’s culture. As such, that culture

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<sup>7</sup> From my reading of Latour (1999:306-7) the closest equivalent to such figures would be “immutable mobiles”.

<sup>8</sup> Ames 1999:41-51.

<sup>9</sup> Thomas 1994:3.



now takes in Spielberg's dinosaur movies, his *Raiders of the Lost Ark* series, and indeed many of the display and expeditionary practices of contemporary natural history museums which derive their livelihood from the traveling action of scientific field work.<sup>10</sup>

While Bakhtin's notion of the chronotope has been applicable here, in that it incorporates the time/space features of the Mesozoic, it stops short of materialization. Materialization is visible in all the simulation media of science, museums, films, theme parks, and rhetorics, working in such a manner that dinosaur fossils soon are made into particular sorts of material objects which ultimately index and aid in conjuring the phantasmatic-material worlds.

Perhaps as useful as Bakhtin's notion are terms that have come out of social and cultural studies of science over the last decade and a half. Susan Leigh Star writes of *boundary objects*, "which are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites".<sup>11</sup> Joan Fujimura discusses *standardized packages* which are theory, method, and technical frames that scientists develop and use to organize and streamline their collective or distributed activities.<sup>12</sup> Latour suggests other sorts of boundary objects, which are more than mere figurative devices, or mediating metaphors. Referring specifically to what he calls "quasi-objects"—including such entities as machines, software, post-it notes (I would add dinosaur models to the list)—Latour writes:

*...they attach us to one another, because they circulate in our hands and define our social bond by their very circulation. They are discursive...they are narrated, historical, passionate...and never forget [they are] Being.*<sup>13</sup>

While related conceptually, there is no particular term that quite captures what takes place with the Mesozoic/Lost World. One that comes close, is what Latour refers to as the "immutable mobile", for which Susan Leigh Star offers this description:

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<sup>10</sup> Also see Fabian 1983.

<sup>11</sup> Star 1989:21.

<sup>12</sup> Fujimura 1992:168-211.

<sup>13</sup> Latour 1993:89. Also see Latour's discussion of "black boxes" 1987:139-40.





*These are representations, such as maps, that have the properties of being, in Latour's words, "presentable, readable and combinable" with one another. Such representations also have "optical consistency," that is visual modularity and standardized interfaces. They are often flattened to make them tractable in combination. They have the important property of conveying information over a distance (displacement) without themselves changing (immutability). Thus, in contrast with a story told from one friend to another that changes with each repetition (like the old children's game "gossip), immutable mobiles may be taken from one place to another, or sent, without substantial change. Maps, books, sets of specifications transmitted electronically, or readings from a meter submerged into the ground or stationed on Mars are all forms of immutable mobiles. ...But no mobiles are completely immutable....<sup>14</sup>*

Though none of these terms fully fit the Mesozoic/Lost World precisely, they still do share some important features in common. All of these hybrid, boundary-crossing entities are real and forceful, made up of both human and non-human resources, which—akin to the chronotope of Bakhtin—organize and mobilize action. These are materializations of interests and phantasies that have real force in contemporary lives. They offer, in themselves, the contours for shaping the interests and phantasies of those who come into contact with them subsequently.

The same is true of *quasi-geographies* such as the Mesozoic or the African Hall dioramas of the AMNH, in their capacity to connect the more extensive social and technical bonds between the culture of science and science as public culture. But a quasi-geography is arguably much more entailing than a quasi-object because it produces an even more thorough set of connections between actors and actants (the non-human entities which help constitute the geographies including display materials, travel, grants, illustrations, etc.). Furthermore, the power of the Mesozoic as quasi-geography is in its very 'lostness', its lack of actual presence, and its fusing of the palpably material with the semiotically reconstructed:

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<sup>14</sup> Star 1995:91, and see note 6 above, this chapter.



dinosaurs are specific fossils as well as imaginings; the worlds they inhabit are known through physical sedimentary traces as well as through scenarios.

Phantasmatic character, invested through the action of technical or display reconstruction for instance, is what gives the Mesozoic a remarkable plasticity. Such plasticity can also be quite dangerous—as, for example, when massaged into a clever culturally-produced naturalistic rationale for racial hierarchies and exclusion as in Osborn’s case. In a positive sense, however, the plasticity of the quasi-geography runs rhizomatically in all directions: into the closeted technical discourses and practices of scientists and out to the public discourses and practices of non-experts. The journey to the cinema, the theme park, the museum, is but the first leg. On arrival, the visitor is launched on multiple possible journeys—outward across exotic terrains of imperial adventure and discovery of mysteries; or inward into the complex terrains of contingent technical knowledges of systematic family trees, genetic codes, or specimen preparation techniques. As such, it is not only dinosaurs that come to life in that nexus of natural/cultural performativity known as the Mesozoic—in the *zone of contact* as James Clifford and Mary Louise Pratt have referred to such points of confluence (in relation to the colonial encounter).<sup>15</sup> It is also human lives and ways of acting which are animated, fully played out, brought into active being.

The production of a particular sort of human figure is one legacy of Mesozoic performativity—that is, the inhabitable figure of the heroic male “dinosaur hunter” and conqueror. The fossil claws, teeth, and the serpent-like visage of the dinosaur named as ‘king of the tyrants’ played no small part in this grand set of revisable if relatively standardized performances. Imperialist and colonialist logics have, through the dramas of

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<sup>15</sup> Clifford 1997:188-219; Pratt 1992. Clifford and Pratt write of the zone of contact specifically in relation to the power disparities of the colonial encounter, where colonizer and colonized come into inequitable relations in the shared geographic space of the encounter. The neo-colonial dimensions of the Mesozoic/Lost Word signal aspects of that disparity where the heroic adventurer encounters those whom he must overpower or civilize. More completely applicable to my discussion, Pratt also points to the Foucauldian perspective: “A “contact” perspective emphasizes how subjects are constituted in and by their relations to each other...[through] co-presence, interaction interlocking understandings and practices, often within radically asymmetrical relations of power.” (1992:6-7).



the Mesozoic, been brought into the supposedly post-colonial present, which appears more truly as the neo-colonial present. The Mesozoic time/space enhances such outcomes.

Given this, when individuals, fossils, dinosaur art, and museums are engaged in these performatives, they become more than role models, specimens, images, and institutions. They become forceful, cultured ways of acting and being in the world. This has serious political consequences. Human figures mobilize and are mobilized by the cryptogeographic space, along with its frontiers, its conquests, its hierarchies of difference, its gender and racial economies. Moreover, this is all done very publicly, and without a critical sense of the resulting public effects.

With this in mind, the miracle (or debacle) of the *Jurassic Park* films—with which I opened this extended discussion of Mesozoic performativity—was not that they challenged moral sensibilities about regeneration of monstrous life of the past. There was nothing remarkable in that position, given that monstrosity and moral ordering have a long and entwined legacy. Nor was it that they presented better dinosaur reconstructions than any museum or any scientist or scientific illustrator had ever achieved, even though this was certainly the case. The greatest miracle—and an extremely dubious one for the political logics it resurrects—was that it played so thoroughly and articulately with modern Mesozoic sensibilities. It did so by bringing together so many of the historically locatable signifiers I have touched upon, simply revising them for a contemporary American-modeled white middle class, and largely heterosexual consumer audience. That prosaic miracle produced multiple billions of dollars in revenues. Crichton and Spielberg—like Sereno, Andrews, and Osborn—banked on this articulation and succeeded. The opportunity to articulate humans and non-humans by appealing to modern sensibilities is the power of such a natural-cultural nexus. However, the coincident matter—that the nexus simultaneously obscures this articulating work and the phantasies which animate it—is where the political and pragmatic challenge for science, media practices, and contemporary science studies emerges.





In the end, two practical points fall out of this discussion. The first concerns the means by which the Lost World/Mesozoic nexus of natural-cultural relations is *transformed* over time. For this, a more localized consideration of the nexus operating within a network of relations is called for in order to see how changes are activated in the outcome. The second point is methodological and relates to the value of ethnographic study for extending upon and complementing the more historiographic approaches I've provided up to this point. These two points constitute the fulcrum for the second major section of this dissertation. Indeed, a central purpose of this extended discussion of performativity has been to set out some terms for the ethnographic project to which I now turn.

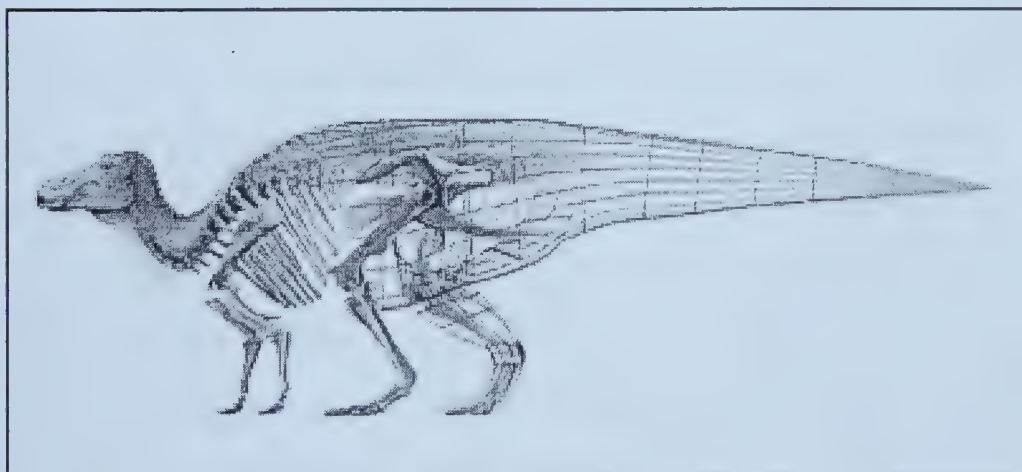


[Part II]

## theatre of the articulate dinosaur

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An Ethnographic Account of the Life and Times of ROM  
#44770 & The Maiasaur Project





## Exhibiting *Maiasaura peeblesorum* “The Good Mother Lizard”

*Approached last year by the team which recovered Cretaceous-era dinosaur fossils in northwestern Montana, ROM paleontologist Dr. Andreas Henson “saw it as an opportunity to show people how a specimen coming out of the ground is transformed into an object of scientific investigation and ultimately public exhibit”.*

—1995 text from computer graphics industry magazine article on the Maiasaur Project <sup>2</sup>

The preceding chapters on “Mesozoic Performativity” came out of a three-year effort to try and arrive at a fairly workable set of terms and practices for further investigations of how public cultures of “nature” are fashioned through the complex relations of science, public mediations, social, technical, and non-human matter. Much of that work took place while I was preparing to conduct a specific ethnographic study on these issues at a particular Canadian Museum, Toronto’s Royal Ontario Museum (ROM). During the early stages of my stay at the ROM, I spent considerable time focusing on matters related to historical dinosaur exhibition practices, that is, the material presented so far. In due course, I realized that to provide a focused study on how public and technical-scientific cultures interpolated at the ROM, I would have to choose a well-delineated programme where such interplay took place, and one in which many players at the museum were directly involved. During my stay, however, no new major dinosaur-related public programmes were launched. A

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<sup>1</sup> Figure 22, Transmorphing Maiasaur Image on preceding title page, Source: Royal Ontario Museum; reproduced with permission of the Royal Ontario Museum.

<sup>2</sup> Pachner 1995:42.





mounted cast of *Tyrannosaurus rex* was obtained and installed in the galleries, but that project was very limited in its scope and mobilized only a few players in the institution. I will be commenting on its integration in the scientific and public practices of the institution later in the dissertation, but on its own it constituted only a minor project and did not allow the wider ethnographic potential I was seeking for this project on human-dinosaurian relations. Ultimately, I chose to focus my study on the Maiasaur Project.

The Maiasaur Project was the most recent dinosaur exhibition project at the ROM and turned out to be a fairly radical departure in display technique for the institution. It specifically employed the most advanced techniques available to the museum in interactive and multi-media technology, while also putting on display an actual “working lab” in which museum technicians would prepare a fine specimen of the dinosaur *Maiasaura peeblesorum* (specimen ROM #44770), acquired largely for the purpose of this exhibition in 1994. Moreover, despite recent layoffs, the majority of staff who had worked in the development of the exhibition in 1994 and 1995, were still employed in the museum from 1997 through 1999 while I was visiting. They represented several of the departments active in exhibition development including the Palaeobiology section, Interpretive Planning, Project Management, Design and Production, Audio-Visual, Marketing and Communications, the ROM Foundation, Education, and of course, Senior Management.

In addition, the exhibition was intriguing in view of the museum’s choice to focus on a non-Canadian specimen of a dinosaur kind that was repeatedly referred to as “friendly”, as relatively modest in size, and noted to me by some staff, as potentially “boring” to the public. This contrasted significantly to the disordinate historical emphasis in museums on large carnivorous dinosaurs, giant herbivores like *Brachiosaurus*, locally relevant finds, grand natural historical narratives, entire Mesozoic era displays. This was an exhibit designed to be about “the life and times of a dinosaur”, and a rather humble one at that. The



Maiasaur Project promised to be a focused, localized story, presenting a case study of an individual specimen which had both display and scientific value.

Four things were concentrated upon by museum staff to ensure this project was unique and would be successful: 1) the choice and acquisition of an exceptional specimen noted as the “most complete” *Maiasaura* skeleton ever collected; 2) the use of interactive digital multi-media displays to “bring the Maiasaur to life”; 3) the in-gallery installation and live operation of a palaeontological laboratory for visitors to witness the work of technical preparation of the specimen; and, 4) the presentation of the “story” of the life and behaviour of a dinosaur understood to have cared for its young, and to have lived in large herds. That story would emphasize *Maiasaura*, “the good mother lizard”, as it’s name denotes. Here was a very loaded point about gendering which, in anthropological terms, added even more interest for me as a focal point for ethnographic studies. Science and society, nature and culture appeared to meet and trade intensively in this project by mobilizing an exceptionally complex array of human and non-human actors within the museum setting and the wider public environment.

The consequences are political in the Foucauldian sense of politics. Certain forms of knowledge were amplified or diminished through the complex actions and the resulting materializations. Anthropologist Sharon MacDonald had this to say about the politicality of museums:

*Politics...lie not just in policy statements and intentions (though these are important) but also in apparently non-political and even ‘minor’ details, such as...the architecture of buildings, the classification and juxtaposition of artifacts in an exhibition, the use of glass cases or interactives, and the presence or lack of a voice-over in a film.*<sup>3</sup>

MacDonald’s comment on politics and museums elicit two points which are particularly salient to my discussions. The first is that things like “policy statements”—or Curatorial and Interpretation Statements—are written conditions of public institutions about how to

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<sup>3</sup> MacDonald, S. 1998:3.



align with, against, or indeed, to modify the polity—i.e., the public. The second point is that things like architecture, classificatory arrangements, display fixtures, etc., are *materialized* conditions which have direct force in these relations with the polity. The Maiasaur Project used all of these resources—policy and planning statements, architecture, classification, juxtaposition, glass cases, interactives, films with and without voice-overs, etc. In the following chapters I trace the actions and relations of a wide range of such elements, considering what sorts of politics come to reside “in” them, and how those politics came to find their way in.

### *Articulating a Dinosaur: Lessons from Science Studies for Tracing “Partial Connections”*

*To see people passing artifacts between them, or to see the locations that hold these authors together, like casting on and off so many cats’ cradles, holds promise for tracing networks.* <sup>4</sup>

—M. Strathern, 1995

At this juncture, I would like to introduce a number of technical points on the approach taken in this ethnographic study, an approach which is highly engaged with contemporary science studies. The project I have undertaken is to trace networks of fossils, science, instruments, museums, media, marketing, and the publics. These networks activate the Mesozoic as a public/scientific trading locale. Marilyn Strathern gestures to this approach in her quoted statement above. My case study considers the making of the Maiasaur Project as an exhibitionary materialization of Mesozoic forms of life.

This research has also allowed me to take up a number of emerging propositions from contemporary science studies, most notably, recent points from Bruno Latour and Joan

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<sup>4</sup> Strathern, M. 1995:183. Strathern’s comment is a response to Donna Haraway’s (1994) influential article on feminist cultural studies of science, “A Game of Cat’s Cradle: Science Studies, Feminist Theory, Cultural Studies” (Haraway 1994).





Fujimura which further address the matter of “articulation”. Latour uses this term to designate that “which occupies the position left empty by the dichotomy between the object and the subject or the external world and the mind”.<sup>5</sup> Like Latour and Fujimura, by articulation I specifically mean the connections and disjunctures in the relations between people and things during the making of, and subsequent public engaging with, this palaeontologically authenticated dinosaur exhibition. A crucial point, however, is acknowledging that the Mesozoic is something contoured both by imagining (that is you cannot hold it in your hand) and as well by material indicators (sediments, fossils, etc.) and material outcomes (exhibits, publications, illustrations). Articulation, then, has to take into account a) people involved (Latour’s “humans”), b) artifacts being passed among people (Latour’s “non-humans”), and c) the phantasmatic dimensions like the “Mesozoic” which circulate and are transformed in each passage. The shifts in the Mesozoic nexus, in the physical form of the Maiasaur Project exhibition, will be considered in relation to these sorts of articulations. Again, the issue of how this sort of “articulation” manifests should become clear over the coming chapters.

I closed the previous section with the comment... “the nexus simultaneously obscures this articulating work and the phantasies which animate it—[this] is where the political and pragmatic challenge for science, media practices, and contemporary science studies emerges.” This ethnographic account, then, is a specific case study of how a dinosaur is articulated (not just the articulation of its skeletal elements), and of what articulations are obscured in the process.

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<sup>5</sup> Latour 1999:303. The way I use “articulation”, while indebted to Latour, is an adaptation of his <human+nonhuman> usage. The proposals I present take a different tack than Latour, in that the performance of dinosaurs presses home the importance of phantasies in moving between humans and non-humans, residing in things or communicative acts, and so resolving the dichotomy to which Latour points. Latour’s discussion (1999:140-143) is extremely compelling, and it is also remarkably imaginative—the latter point, that it too requires “imagining”, is precisely why I quibble with his otherwise articulate and provocative proposals.



As the complexity of actions is endlessly traceable, what I present here is necessarily a partial investigation of the connections. In addition to the direct action surrounding the making of the exhibition, other dimensions of articulation which I begin to contour include detailing the flows of visitor knowledges inside and out of the exhibitionary experience, and the flows through the scientific action of the curator in relation to palaeontological history and practice. Suggested, but not sampled in detail, are: the flows through management and board of trustee action; training regimes for museum staff; the selection process for collections management; regimes of communication among museums; governmental policy flows; shifts in institutional history; and so forth. Though many of these interlinked trajectories are suggested in the discussion, each would constitute very consuming loci for research in their own right.

My study does, however, ask focal questions: what is in an exhibit?; how did it come to be there?; and, what are the implications of that dynamic of production for the making of what counts as nature, forms of life, and the relations among them? As an anthropological ethnography, I concentrate on those actions, debates, and translations which have an effect on the culturing of such material outcomes. As in Part I, gendering is a significant element of this account, though again, the complexity of the situation regularly opened up all sorts of uncertainties and doubts about how gendering operated in the making of the exhibit. The embedding of both individual and collective senses of gender identification is what is of interest. Many corresponding effects are also signaled: the status of museums as civil institutions; the politics of natural history, the complex relation of science and culture, to mention a few. Each presents opportunities for future avenues of scholarly consideration.

In these ethnographic accounts, I continue to use the four plastic techniques of recovery which I discussed in the first section:



- 1) following heterogeneous **networks** to recover articulations among people and things<sup>6</sup>;
- 2) watching for **nexus**es as key “zones of implosion” where dinosaurs **precipitate** materially/imaginatively, and where intensive trading takes place; and,
- 3) recovering from these the dominant emerging **relationalities**<sup>7</sup> (e.g. politics, senses of kinship, gender, affinity, etc.), and, as well those that are obscured.

With these techniques, my intention is to achieve a usable and reliable<sup>8</sup> blending of the contributions to social and cultural studies of science made available from a range of approaches: anthropological, sociotechnical, feminist, and postcolonial science studies.<sup>9</sup> At the same time, I draw upon recent anthropological studies of museums as sites of natural/cultural production.<sup>10</sup> By the end of the discussion, some of these logics and complexities should help in posing further questions about performative dimensions of dinosaurian nature-in-the-making.

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<sup>6</sup> I continue to adopt aspects of the practices of Latour, Callon, and Law which is the work of “tracing socio-technical networks”. Latour has also referred to this research practice as a “semiotics of entities”. The approach recognizes the agency of all the entities, human and non-human, which assemble into a collectivity of translations producing, in the ‘positive’ sense, an outcome, as in the case of an exhibition.

<sup>7</sup> In Chapter Four, I described my use of “relationality”, which is worth repeating here: “By *relationality* I mean the multiplicity of possible ways of enacting or making relations between humans and humans, humans and nonhumans, etc.”

<sup>8</sup> I use the term “reliable” to signal that what is presented in these pages is a confident proposition on the heterogeneity of science as cultural practice. The term “reliability” has some interesting contemporary meanings. Webster’s Dictionary defines reliability generally as “worthy of confidence, trustworthiness”. In software engineering practices of “quality assurance”, where operational steps have to be defined to a reductive, strictly-defined level of predictive performance, reliability has a quantitative meaning: “The probability of a product performing without failure a specified function under given conditions for a specified period of time.” The probability noted is quantitative, not qualitative— eg. “99.95%” rather than “high”. It may also have confidence limits, but they are not usually quoted.” (personal communication, Dr. Pat Cross, quality assurance engineer). As the approaches used in Science Studies and the tremendous heterogeneity of actions are very unlike software performance, the latter definition is not applicable. At the same time, just as software is designed for a *particular* set of reductive functions, so are science studies practices *particular* to the heterogeneity they sample. Based on a common interest in “performance”, perhaps some shareable terms for science studies and science practice could be developed around the notion of ‘reliability’. Such a discussion would have to consider seriously the reciprocal effects of reduction on heterogeneity, and heterogeneity on reduction.

<sup>9</sup> For anthropological approaches, some of which have particular feminist and post-colonial commitments, see bibliographic entries for Emily Martin, Sarah Franklin, Marilyn Strathern, George Marcus, Stefan Helmreich; for Anthropology of Science and Techniques, see bibliographic references for Bruno Latour, Michel Callon, Joan Fujimura, John Law, Susan Leigh Star; and intersecting all of these, see entries for Donna Haraway.

<sup>10</sup> See, for instance, bibliographic entries under S. MacDonald, J. Clifford, I. Karp, Handler and Gable.





## *Material Statements: Writing This Ethnographic Account*

In preparing the critical description of the Maiasaur Project, I have worked with several ethnographic sources. Notes taken during a number of walks through the exhibition space during public hours constitute one principal through line in the description. My intention in these notes was simply to consider the exhibit in its architectural space as a production in three-dimensions, that is the physical exhibitionary installations, including: interactive components, display cases, computer graphics theatre, a soundscape, a mounted skeleton, textual ‘didactics’, lighting conditions, sponsor acknowledgment panels, etc. In some cases I included general impressions of audience interaction.

Those notes are augmented by descriptive notes resulting from a review of an archival video record of the exhibition supplied to me by the Audio-Visual staff of the museum, which followed a path through the exhibit which the designers conceived visitors as following—even though, as I will point out, this path was only sometimes followed by visitors and even then only approximately. In addition, I conducted a number of individual “follows” of visitors through the exhibit to witness how a variety of individuals engaged the exhibition.

Approximately 70 hours of interview tape were made in the course of the research. I have sampled several of the interviews, but key in especially to those interviews which provided a strong sense of what (or whom) connected people to fossils, fossils to displays, displays to people, etc. The curator, the interpretive planner, the exhibit programming manager, the digital media producer, and the principal preparator of the specimen were main sources. Others I draw on to a lesser extent are interview commentaries of one of the designers, the marketing coordinator for the exhibit, the principal sponsor of the exhibit, the production manager, and several other technical and curatorial staff of the vertebrate



palaeontology section. Finally, I have incorporated occasional comments from ethnographic interviews with visitors to the exhibition.<sup>11</sup>

I take the material exhibition and its development as the referential trajectory in this discussion, allowing it to open up linkages with interview commentaries, work-community connections, visitor comments, interpretations and semantics, story sources, other specimens and exhibitions—in short, wherever the tracing of such connections leads me. As such, while there is a baseline for analysis—the materially manifest exhibition itself—the possibility for extending discussion into the widest array of social, and material forces is still retained.

In one sense, there is nothing particularly unusual about the Maiasaur Project or its execution, which may indeed be why it makes for an interesting project to study. A lot of taken for granted issues came to be played out, setting in relief those matters which tend to disturb the more regular matters of institutional practice. In the course of the descriptions, I present some of the inconsistencies, accidents, and mix-ups that are part of everyday action. I also attend to those decisive contests, accomplishments, and their associated, technical and social relations, along with the logics which appeared most to animate them. In keeping with this, the account doesn't always proceed in a straightforward narrative path. It moves in different directions, like Deleuze's rhizome, following different leads as they become apparent. In addition, I interrupt my narrative descriptions from time to time with summary statements where I try to draw the readers attention back to the performative relations I have introduced in Part I.

Some of the cited comments of individuals suggest conflicts and disagreements in the planning and making of the exhibit. On the whole, however, the development of the

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<sup>11</sup> During the ethnographic documenting, I attended as much as possible to visible cues as to the gender, ethnicity, age, and other social positioning of the anonymous visitors observed in the process in order to derive a situated sense of the exhibit in action and the corresponding multiplicities of possible situated 'public' interactions. My intention is to continue in considering such material in future scholarly writing on the Maiasaur Project.



Maiasaur Project was considered by those involved to be an exhibitionary success, and in general, the people in this collective worked well together to produce that result. That said, I have to point out that my critical commentaries throughout continually trouble the very question of what counts as a “successful” exhibition. This in no way diminishes how impressed I was personally by this exhibit and its effectiveness, and by the sincerity and diligence displayed by each of the individuals in working to create this product. The experience was full of surprises—especially when I encountered the variety of ways that people fashion their own meanings out of the exhibit experience by creatively filling in with their own narratives and sources of knowledge from media sites well beyond the walls of the museum.

I am immensely grateful to all those at the ROM who provided information, materials, insights, anecdotes, or commentaries and agreed to be interviewed on the Maiasaur Project and the museum in general. Pseudonyms are used for all the museum staff. The degree of candidness exercised by most people in the museum was notable, and it was that candidness which allows the finished document to be rich enough to produce a reliable, if partial, sense of the way the heterogeneous network operated. There are undoubtedly, several individuals interviewed who could offer a rich account of what took place in development and the outcome that is the Maiasaur Project. Their individual accounts would bring into play other highly valid issues, perspectives, actions which I either leave out or recount in a manner quite different from what each of them would offer. One of the points of ethnography is to attempt to generate not simply a multiperspectival account, but also to risk wading through it all with a purpose in mind. My purpose, once more is to understand how vested interests, multiple perspectives, plans, translations, contingencies come into a sometimes unexpected coordination to produce a result—one may call that result in this exhibit variously as “nature”, the “Mesozoic”, “dinosaurs”, “cultured visions”, a “performative world”.





## The Trajectory of the Texts: A Series of Retellings

Each of the chapters deals with the Maiasaur Project and the specimen it ‘centred’ on—ROM #44770. The tale of the exhibit is told and retold a number of times along the way. This is not a history of the ROM, but rather a multi-layered account about a single exhibit and its development within a wider range of social, cultural, material, media, and technical cross-currents. As the discussion proceeds, points raised in previous chapters are recalled and brought back into the mix, at times, troubling and complicating previous propositions as a result of their resituating against different interests and actions. As such, some guidance on the temporal framing will probably aid in reading this.

The Maiasaur Project is considered in relation to three time frames: the period from late 1993 to mid 1995 during which the exhibition was proposed, planned, and produced; the period from June 1995 to October 1997 during which the exhibition with all of its planned components were in place and operating; the period from late 1997 to early 1999, during which one of the exhibition components, “The Working Lab”, had been replaced by a standing mounted cast of the specimen which had been fully prepared in the first two years of the exhibition. My ethnographic study took place within the last of these three time frames.

My in-gallery accounts, therefore, are of the exhibition in its ‘post-laboratory’ phase. As such, the discussions of the laboratory are drawn from interviews with those who worked in the lab and with members of the exhibit development team including the curator. I also made use of a documentary video recorded when the exhibit opened which provided me with a fairly clear sense of how the space and its elements operated.

A second matter relates to the temporality of interviews. The comments made by museum staff in the interviews are mostly retrospective—reconstituting the activities of the



planning and development phases or the exhibition in its first two years of operation, with the lab in place. Those interviewed also spoke about the exhibition and other activities in the “working present” (i.e. the ethnographic present) of the interview. The museum visitor interviews all took place in the museum—most of them in the mezzanine landing just outside the gallery containing the Maiasaur exhibition.

The third matter is that the chapters proceed not so much in a direct linear fashion, but rather in a sequenced but cumulative fashion. Each recounts the exhibition from a different standpoint—first, curatorial interests are highlighted (Chapter 8), then marketing and promotional effects (Chapter 9), then exhibit planning and development including a discussion of the working lab (Chapter 10), followed finally by two chapters grounded in my gallery observations (Chapters 11 and 12). My comments accompanying the curator’s overview are of a general sort which, to the reader, might appear somewhat general and open-ended. However, in subsequent chapters, which work as additional iterations of the Maiasaur Project, the evocation of dense translations builds. With each move, different interests and agencies are activated, and the effects of those are contoured. My intention is to allow the reader to revisit the process and the exhibition and along the way come to a fuller, compounded sense of the complexities at play. Therefore, each chapter is additive, suggestively following how the logics come to be subtly or radically transformed as they are embedded and concretized in the outcome—a process of gradual sedimentation to use a geological analogy, of precipitation to use a chemical one.

Of any individual, the curator is referenced most. By returning repeatedly to the curator’s commentaries, it becomes clear how his perspective and intentions were gradually complicated by the multiplicity of players at work. The exhibition, the final concretizing of all the translation practices, emerges as the final outcome. With the details of translations and contingencies presented, I then offer comments as to what has precipitated, what the



resulting articulations and relationalities were, and how Mesozoic natures and orders of life are transformed in the process.

In greater specificity, the chapters proceed as follows. Chapter Eight, *A Real Sense of a Dynamic Process* provides a retrospective account from the Curator of the Maiasaur Project of the history, intentions, and potential of the exhibition. From this, I tease out a number of initial issues and questions to be considered. Chapter Nine, *A Really Big Jurassic Place* considers the manner in which the exhibit came to be promoted through the news media, and the manner, in turn, that the news media responded. Some of the basic tensions in the making and presenting of the exhibit begin to come forward in relation to the question of the role of museums as centres which struggle to educate and entertain, actions which are often seen to be in conflict with one another. Chapter Ten, *Need to Say, Need to Know*, addresses the planning for the exhibition through a close analysis of some key documents meant to guide the development of the exhibition, and to connect the intentions of the curator with those charged with producing the physical exhibition. Matters become increasingly complicated as players begin to contend with a specimen being prepared in real time, and with competing interests in how best to produce a relation between the specimen, the lab, the media, and “relevant” stories for a projected audience. Toward the end of the chapter, the “Working Lab” is discussed in relation to the articulations it entailed. This is organized largely around an interview with the key palaeontology technician who prepared the specimen over most of the two years in the lab in front of the viewing public.

The next two chapters move into accounts about the two remaining physical spaces of the exhibition after the working lab was removed. In effect, the discussion proceeds loosely as a walk through the exhibit, allowing quick turns to consider how things came to be as they were, what sorts of effects were produced, and what the circulations might be beyond the exhibit space itself. Once again, I attempt to maintain a dense ‘conversation’ between my own descriptions, the action of those who produced the exhibit, and the action of those who





came to visit it. Of these, Chapter Eleven, *A Perfect Time for Raising a Family* considers the first, more conventional section of the exhibit, known to the development team as “The Cretaceous Period” component. A small metallic dinosaur model turns out to be a special actor in the official entryway to the exhibition. This section of the exhibit followed fairly linear narrative structures and attempts to orient to time-space and selected specimen showcases. This was where the visitor was phantasmatically carried into the Mesozoic nexus of the Maiasaur’s “Life and Times”, and into a ‘domestic’, ‘familial’ dinosaur ‘neighbourhood’.

Chapter Twelve, *Technotheatrics*, follows through the large screen interactive “Meet a Maiasaur” theatre, attending again to the complexities of mediated production, contests over how to sustain ‘museumness’ over the impulse toward ‘Disneyfication’, and the contingency of visitor and technical knowledges working in relation to an animation-based exhibit component. The pewter Maiasaur re-enters the accounts as an example of dinosaur fetishism, as the chapter closes with a discussion of the relation of the Maiasaur exhibition with other histories of cinematic spectacle and technologies.

The ethnographic account concludes with the chapter “*Not Just a Rex Object*”? This ultimately offers some opportunity for considering the wider politics of the ongoing, contemporary reconfiguring of what counts as nature, and the way that such ‘natures’ come to have force in extending or upsetting the complexes which have brought them into being. The dominant effects of the Maiasaur Project network, its nexuses, precipitations, its relationalities are reviewed. The on-going fetishist effects of dinosaurs are presented as something of a disquieting litmus test—or possibly a market test—for the refashioning of museums and nature in the contemporary globalizing cross-currents of leisure and educational entertainment practices. The role of curators within collectives as agents for change in these conditions are examined. This in turn helps to animate discussions taking place elsewhere in museum practices in relation to the place of dinosaur natures in state-



supported and autonomous museums in Canada particularly, and in wider circulations of Euro-American natural-cultural production generally.



## "A Real Sense of a Dynamic Process" The Curator's Retrospect

*A high tech exhibit illuminates the scientific process...*

*Designed to expose the behind-the-scenes process of research, this 3500 sq. ft. display combines the cool modernity of scientific analysis with the theatrics of dinosaur reconstruction. A unique working lab allows visitors to watch paleontologists at work on an actual Maiasaur specimen.*

— 1997 text from Graphics Design Annual, profiling the Maiasaur Project <sup>1</sup>

To open my multiple accounts of the making and working of the Maiasaur Project, I begin with what is a remarkably concise retrospect offered by the ROM's Dinosaur specialist, Dr. Andreas Henson, who is a vertebrate palaeontologist, the curator of the exhibit and also Professor of Zoology at the University of Toronto. The quotes in the following pages are drawn from a series of three interviews with Henson in the early period of my fieldwork.<sup>2</sup> My comments and the selected quotes serve to signal some of the emergent points and questions which will be discussed in subsequent chapters. Those chapters contain more extensive incursions of my own critical commentaries and the counterpoints or associated actions and commentaries of others linked to the element being discussed.

In these early interviews, Henson laid out much in his story of the exhibit, and the ongoing ethnographic issues were becoming clear. I approached the project as an opportunity to retrace how scientists, museum staff involved in the complex work of a

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<sup>1</sup> Quote from Wayne Hunt's *Urban Entertainment Graphics* (1997:194). Madison Square Press. Copies of the pages in this special book profiling international graphic design work was given to me by the project's 2D designer, Sam Enright.

<sup>2</sup> Interviews with Andreas Henson, January 8, 1998, and August 4, 1998.





museum, and visitors to an exhibition draw upon fossil matter along with other displayed matter to conceive and actualize the “dynamic process” of palaeontological reconstruction — what it could mean to “flesh out” a dinosaur.

What is most interesting about this opening account is that it has the advantage of the curator’s retrospective with the finished exhibition already in mind, including all the history of its making. Dr. Henson expresses significant pride, and has a considerable sense of authorship for the exhibition, from obtaining the specimen through to the display content, its animations and means of communication.

## Hindsight

BN: *I would like to recount the history of the display...I’ll give you a few cues... I understand that Bearpaw Palaeontological Inc., Vernon Runyon, collected the specimen and the ROM bought it from him...right?*

AH: *He served as an intermediary for the people who had found the specimen, and collected the specimen...Blackfoot Nation in Montana...members of the Flamand family... Sherry Flamand had discovered the specimen, and the Flamand family is the only family on the Reservation who collect fossils, so when fossils are found they go to tribal council and ask for permission to collect it... And Bearpaw Palaeontological acted as intermediary for a buyer...*

BN: *And when was that?*

AH: *I believe 1993...shortly after I started at the ROM...I started in 1992...*

This project, then, would be the first major opportunity for Henson, as the newly hired curator of fossil vertebrates specializing in dinosaurs, to make his mark through a public programme at the museum. A long-time administrator in the museum later suggested that this would have been a much more difficult task, had Henson not been new to the institutional structure, and its cumbersome organizational divisions. The administrator commented:



*...getting a dinosaur from the ground to the public, that all needs to be in one area.... you can't have it divided... and yes, the Maiasaur Project was like that because it was a team... but they also had Andreas, who was new, he didn't have any baggage...he didn't know of previous problems...he wanted to make his mark... It would never have come off if it hadn't been for that...<sup>3</sup>*

Notably, the Maiasaur Project exhibition was the product of a team effort, an organized collective approach to exhibition development, as may be found in various forms in major Western museums of nature, science, and culture today. Andreas Henson continued with his account:

*They're the only family that goes out and collects fossils...two older brothers and her parents...Sherry discovered this one...  
...So, to give you our perspective...we had this offer to buy this specimen...Now I'd been looking for some time to do an exhibit project that went beyond the usual dinosaur exhibit...What you generally get in a dinosaur exhibit...you put up a nice skeleton, which in itself is an object of aesthetic value, and to a few individuals an object of appreciation of the history of life on earth...But basically it's a very static experience...You're taken in, you're awed by it, kids go through and say "oh yeah, it reminds me of my green picture I have in my kiddie dinosaur book"...But basically it's a very static and ultimately not very satisfactory experience...*

*...So, I was interested in developing an exhibit that actually had a dynamic component to it...that there was a lot of research behind...in fact it took a lot of process to get to that final mounted skeleton...*

This point, that "it took a lot of process to get to that final mounted skeleton", signals the complexities to be considered in this ethnographic study, as they were also the complexities encountered in the making of the exhibition. Henson explained this point further:

*... as a museum professional, you get a lot of questions associated with any exhibit....people want to know 'where's it from', 'what does it tell us', 'why do you have it', 'what are the special problems in getting it'...and then interpreting it.....*

*...And since the overall mandate of a natural history museum should be to explore, discover, and interpret nature...All of these things you would want to have confluent in one exhibit...*

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<sup>3</sup> Interview with Beth Jameson, March 1999.



This then, was a statement of the curator's basic rationale. He was well aware of the mediations necessary to realize the exhibit. Outlining his own approach to dinosaur worldmaking, Henson explained how he "designed the idea":

*...So, I basically designed the idea of having an actual lab on the floor where technicians worked preparing a dinosaur from its field jackets, interacting with the public in the process, but then building around it the whole infrastructure—the history of the specimen, where was it from, what ancient world did it represent, what did the world look like at the time, what 'can' we know about dinosaurs?...particularly since there's so much public confusion due to the often exaggerated claims by certain popular writers about what we can actually infer about ancient animals.*

*...But also, how does this dinosaur fit into context? Like how does it relate to other similar dinosaurs, how does it relate to its ecosystem...Basically, what you have to do then, is have the facility of preparation, we have to have an exhibit to show the actual assembly and mounting of the skeleton...but then show the scientist at work...the background being specific to the one specimen, but also more general...the ancient ecosystem, 'what did North American look like at the time?'...*

*...The way this was achieved was by a combination of [1]actual fossil specimens and casts, [2] the preparation facility, [3]video recordings from the side talking to the actual discovery; me walking around in the badlands providing context 'today it's badlands, but 75 to 80 million years ago, this was along the margin of a lowland coastal plain along a huge seaway dividing North America... [4] But then also interactives, like, Hadrosaurs are basically very stereotypical animals...yet there's an enormous amount of variation in the skull... 'what does it do?'...maybe the crests were used to produce sound in some of them...in some cases you don't have crests but you have these incredibly enlarged narial openings... 'what is the possible significance of that?'...*

These last points are matters of palaeobiological reconstruction. As should become clear in the chapters to follow, these matters present crucial points of disjuncture in the curator's scientific conceptualizing and the ultimate finished outcome in the display. Henson considered a basic question which should be posed:

*... 'why are Hadrosaurs important?'... bring up the whole idea of the possible co-evolution of flowering plants and these very active dinosaurian herbivores which apparently were social animals and lived in large herds...*





*...So, there are then all these different narratives that you tie together, but you give it at the same time, the sense of 'how is it that this has developed?' ... 'how do you go from just bones in the ground to a neatly mounted skeleton in the gallery, AND BEYOND, you know putting flesh on it... or can we make inferences on how the animal moved, what it looked like... One of the dangers of putting a skeleton in an exhibit, is that people appreciate its own aesthetics, its own aesthetic dynamic...but at the same time, it's very difficult for non-anatomists to put flesh on them...*

The statement that non-anatomists do not know how “to put flesh on” dinosaurs is interesting, especially when considering how the visiting public at this museum is extensively exposed to fully fleshed out dinosaur images through schooling, television and other media. Henson is suggesting that there is important mediating work to be done in showing the technically-correct procedures of ‘fleshing out’ the skeletons. The work of palaeontology in this exhibit, therefore, was to make up the distance between the specimen and the spectacle—a case of actively performing the Mesozoic nexus by mobilizing specimens and scientific discourse and imagining creatures and their worlds. Henson presents two vectors in this work: (i) proceeding from fossils in the ground to reconstructed, mounted skeleton (emphasizing the ‘object’), and (ii) then continuing from the skeleton to a reconstructed living species in a reconstructed living world (emphasizing the living ‘context’).

On the latter vector, Henson expressed constraint in relation to how far one can go in reconstructing the living animal with certainty:

*...So that's why we had the animation of the actual animal taking a drink or snorting or running around in the forest... just to give a little bit of a feel of how this animal looked... you know, we tell people 'we don't know the colour, but we know a lot of other things', for instance, the animals had scaly skin...most dinosaur reconstructions make them look like the 'Goodyear Blimp'...just these pudgy creatures with apparently perfectly smooth skin, or in some cases with an elephant-like skin texture... Yet every example of dinosaur skin impression ever found...whether it be theropod, sauropod, ankylosaurs, hadrosaurs, ceratopsians...always is made up of these polygonous scales...So basically all of the existing dinosaur reconstructions are incorrect...*



This comment on existing visions implies, notably, that there is considerable power and agency in preceding reconstructions. These previous smooth-skinned reconstructions have sufficient force (through scientific and public representational and imagining practices) as to limit alternate reconstructive visions developed with newer scientific data (eg. “polygonous scales”). Yet Sue points out that even such fossil-informed shifts in reconstruction are subject to “imponderables”, which are pondered nonetheless:

*...to give that sense...there are knowable things, and then there are imponderables  
...unknowable things that we try to infer from various sorts of evidence.....*

Here is a moment when uncertainty and informed phantasizing are admitted. The supposedly systematic and phantasmatic fuse, working with inference, from the “unknowable” to the visible.

However, such imponderables demanded a consideration of the resources which would allow such inferences to be realized in exhibitionary form:

*Now... the big trick was to do this all within a manageable budget...*

Indeed budget limitation, the “big trick”, was a very serious source of constraint, challenge, and uncertainty expressed not just by Henson, but by everyone involved in the making of the Maiasaur Project. It would have tremendous implications for the outcome. Strangely, however, the administration did not support a previous proposal which, according to Henson, would have saved money:

*My initial idea had been to go out to Mongolia and collect a Tarbosaurus skeleton...because people have this fascination with the great meat-eaters...Well, this notion was thrown out as being too expensive...which retroactively I find very amusing, because I could have done this for less than what we spent on the Maiasaur Project...But that's an aside...*

Apart from the fiscal point being made, this is actually a highly pertinent aside, though Henson does not acknowledge this particular relevance. Henson gestured here to the opposition between the potential of harnessing what he saw as public ‘fascination with great meat-eaters’ and the opting instead for presentation of a passive plant-eater. That



opposition—great meat-eater versus passive plant-eater—became a crucial resource in the course of the exhibit making and its ‘reception’. It was a major consistency in scientific, communicative, and public efforts at making sense in this exhibition. Expanding further on the development, Henson continued:

*...So, we had this offer of a Maiasaura specimen...and I tried to convince senior management to go ahead with this idea... So I went through our formal exhibit development process with a proposal... People in exhibits were quite interested in it... But there was this feeling that the preparation activity—since it unfolds in rather gradual steps and little increments over time—that this was not an exciting activity, that people would not be interested in this...*

*...I must say, without any arrogance, that I knew this to be wrong, because I had seen a much smaller dino lab like this active at the Smithsonian Institution, and it was a huge hit with the public...even though the fossils were much less obvious... a whole bunch of skeletons jumbled in blocks collected from the Coelophysis quarry at Ghost Ranch...so the bones were much smaller and you had a much harder time making out things...Yet I was convinced if you had this facility with these bones gradually emerging, with technicians who are good communicators who would come out a couple of times a day to talk with the public about what they were doing, that this was a success...for the very simple reason that people love activities...this is something that many museum professionals do not understand...*

*...people LIKE to know how things are made... Like it’s exciting to see, say, a piece of Navajo pottery sitting somewhere, it’s even more exciting to see a Navajo potter actually making one... People love this... People want to know how things come about...*

*...This is that same dynamic... So, I knew that it was a very hard sell...and I knew that only by putting in an over-abundance of interactive technology which somehow made it hip and modern... was I able to sell that very simple idea...*

The lab was truly the key component of the display for Henson, the site of actual technoscientific action, and the opportunity to present dinosaur fossils via aspects of the craft that makes them comprehensible and visual. The other new media and interactive technology, as he notes, was needed to make it “hip and modern”. These technologies were





precisely what Henson needed to “sell” managers at the ROM on what for him was the far more important element, the element which would expose the “dynamic”.

To “sell” the idea, is a significant understatement of the complexity of the action which had to take place. What Henson did here, in the actor network terms of John Law and Michel Callon<sup>4</sup>, was *enroll* the powerful agency of interactive media. Interactive media had become a rising fixation at the ROM, as it has for large-scale museums in many wealthy nations.<sup>5</sup> The enrollment of the interactive media would, of course, have significant effects, beyond providing the conditions for the lab to be built and to operate publicly. Henson, as I learned, was highly literate not just in leading palaeontological techniques and theorization, but also in museum practices, the history of science, mass media, monster and science fiction movies, and much more.

*...Now, it's interesting, once the project was underway, having a distinct museological interest myself... I went out and observed time and again, how the visiting public would view things... It was interesting, people would go and push a few buttons, see the interactives, but even when the interactives were still on, they would often go back to the lab... I know from our technicians, some people revisited that lab over the life of the project thirty or forty times... So obviously, this 'boring activity' which the administrators had identified, was actually a viable one... people were actually interested, they lived with this one... this was like seeing a child grow up, or some other complicated process like that...*

*...So, people were really taken by this dynamic activity... even though the increments were small... and coming on a day to day basis you wouldn't see much... but say if you came every other month, you saw a lot of things happen... We had the drawing of the skeleton, and filled in the bones that were being exposed and conserved... So you had a real sense of a dynamic process, something unfolding... the evidence being literally unearthed and exposed to the public...*

Andreas held to his point about the ‘dynamics’ of the lab preparation. In the process of development, as Andreas noted, some of the exhibit specialists would be troubled, as one

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<sup>4</sup> Callon and Law 1982:615-26.

<sup>5</sup> cf. Barry 1998, Bearman 1993.



pointed out to me, that watching real-time fossil preparation is “like watching paint dry”. While it appears from my other interviews that almost everyone in the exhibit development process came at some point to embrace the lab as an experiment in display technique that worked extremely well, in this moment of idealized, almost memorial recounting of the project, the curator appears compelled still to justify the laboratory, amplifying how very important and challenging this approach had been. His commitment was in attempting to articulate the specimen with public sensibilities, like “something unfolding”, or in his more personalizing terms, “like seeing a child grow up”.

What Henson identified here is something symptomatic about museums historically, including natural history museums: (i) they tend to show the black-boxed specimen as an aesthetic or systematically identified object, or, (ii) they produce a spectacle which wraps the specimen in an elaborate set of visions and narratives. They rarely expose the craft of scientific or exhibitionary production. The difficulty in selling a publicly visible working lab, was that it appeared to risk exposing all of that which a history of hiding the action of science in museums had attained. At least partially, the lab promised to reconnect the thing found, with the resulting public vision of its recreation and transformation.

At the same time, this was a very costly exhibit for the ROM. The specimen alone was one of the most costly the museum had ever acquired at a purchase price of over \$200,000 Cdn.<sup>6</sup> In more than one sense, a lot would be at stake for those responsible. Justifiably as curator, Andreas accepted both credit and responsibility for raising the stakes by pressing for the lab. But the consistent agreement among staff about its success led me to ask what I thought was an obvious question: why was the lab removed from the exhibit two years after it was launched, while the rest of the exhibit continued:

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<sup>6</sup> While many different accounts of the costs were reported to me, the direct costs of the exhibit were roughly \$550,000 Cdn, approximately \$200-250,000 for the specimen, \$300,000 for construction, media elements, hardware, lab installation, etc.. An additional \$250,000 was donated by sponsors in animation software, labour, and hardware. These figures are approximates based on interview statements and budget documents prepared during the planning phase.



BN: *Okay...but now [the lab] is gone...Why did the management not recognize the ongoing value?*

AH: *Well, the project was completed.*

BN: *Yes, but so what?... don't people evaluate something, and go 'hey, this is one of the best things we've got going in the museum'... It was that, wasn't it?*

AH: *Yes, I think so, yes. ...No, this is not statistically significant, but I have had a lot of feedback from members of the public in our own neighbourhood, but also from other visitors who are regular 'museum buffs' as we call them in our museum planning lingo...that this was very good.*

*...We had the inherent limitations... This was something outside normal museum activities... The principal technician was a contract technician... There was a finite amount of money there... And it would have been inconsistent with the overall mission of the exhibit, if we had suddenly put someone in there to break rocks with brachiopods...that kind of thing...It is a little unfortunate*

Budgetary constraint was cited as the key here, as was conflict with the official mission, to prepare the specimen, ROM #44770, into displayable and researchable skeletal form.

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Clearly evident from these early interviews with curator Henson was that I could indeed use an ethnographic approach to understand some crucial aspects of the specimen-spectacle relationality. Henson had touched upon many key actions including the authentication work needed in producing effective life world visions of the Mesozoic, the incursion of phantasy through inference and pondering upon the imponderable, the complex of human and material resource to effect an exhibition, the multiplicity of public and expert actions which might be brought to bear upon the reconstruction of a dinosaur, the technical work of palaeontology, the strategic moves which scientists make to advance their practices, etc.

The opportunity here was to recover that which comes between the fossil and the displayed worlds, and to identify those chief material-phantasmatic entities which precipitate through that process. In the terms of Mesozoic performativity (as outlined in the first part of this dissertation), the questions are apparent. What materialized-phantasmatics would be





performed through this very theatrical, interactive display of science in action, of a particular sort of dinosaur, and of a very particular specimen? How would this take place, and who or what would have the greatest influences? And given that performative outcomes had in the past—as with Osborn and the AMNH—tended to conceal certain key interests and agencies acting upon their making, what, if anything, might be obscured in this most sincere process of trying to present the dynamic process in action?



### “A Really Big Jurassic Place”

#### The Exhibit in the World, The World in the Exhibit

*When the Royal Ontario Museum opens “The Maiasaur Project: The Life and Times of a Dinosaur” in mid-June, the public will witness the most ambitious use of computer graphics ever by a museum, and the first time multimedia installations have formed an integral part of a ROM exhibit.*

— 1995 text from computer graphics industry magazine article on the Maiasaur Project <sup>1</sup>

#### Summer 1995—Launching the Maiasaur Project

Andreas Henson had told me that in order to advance his project of presenting a working lab, to give a “real sense of a dynamic process, of something unfolding” that he would have to position the exhibit in a particular way:

*I knew that only by putting in an over-abundance of interactive technology which somehow made it hip and modern... was I able to sell that very simple idea...*

The official marketing program for the Maiasaur Project would end up oscillating in its commitments related to the lab and the interactive multimedia. The invitation to the members launch had placed equal emphasis on the lab and the interactive media, and had used the original name “The Maiasaur Project—the Life and Times of a Dinosaur”:

Please join us for a Members' Preview of  
the Maiasaur project  
the life and times of a dinosaur

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<sup>1</sup> Pachner 1995:42.



Step back 80 million years in time to experience the life of a Maiasaur at the Royal Ontario Museum's new interactive exhibit. In a special working lab, technicians will work to unlock the skeletons of an adult and baby Maiasaur from the rock in which they have been embedded. Complementing the lab, state-of-the-art interactive multimedia exhibits provide the latest research findings about the Maiasaur and the Cretaceous world it inhabited.<sup>2</sup>

However, as I came to learn in reviewing the development of the project and its wider public extensions, the major emphasis in the project's promotions would be upon the interactive media.

The Royal Ontario Museum exhibition "The Maiasaur Project: The Life and Times of a Dinosaur" opened in the middle of June 1995 to a flurry of news media interest—interest that was carefully coordinated and extensively promoted by the museum's Marketing and Communications Department. The exhibition's launch and summer run resulted in "27 broadcast reports and 29 print pieces"—a level of interest deemed "excellent" by those in the department.<sup>3</sup> The news and feature reporters were given access and rights to the use of ample high quality audio and video material from the exhibition's "state of the art interactive multimedia" displays—including visuals resulting from application of what was touted in the museum materials as "*Jurassic Park*-quality hardware and software". This referred specifically to the exhibit developer's use of the computer animation system of Toronto-based Alias Communications, a system that was indeed also used in the dinosaur animations of Spielberg's 1993 block-buster film *Jurassic Park*.

As mentioned, the "skew" or "spin" of this exhibit for the marketing staff and consultants behind the exhibit was to emphasize the multimedia. The Marketing Coordinator had noted to me that they developed a second project title used for much of the promotional materials:

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<sup>2</sup> This text is from the invitation to the exhibition launch for ROM members. In addition to my own transcribing of texts in the display area, various copy material for invitations, signs, display text, etc. was kindly provided to me by designer Sam Enright, by the Interpretive Planner Jennifer Ross, and by the Marketing and Promotions Coordinator, Brenda Mikelsen.

<sup>3</sup> Report of the Marketing and Communications Dept. on promotion of "The Maiasaur Project", November, 1, 1995.





*Now the actual title of the project, we actually deviated from that somewhat... It was originally “The Maiasaur Project: The Life and Times of a Dinosaur” ... And we changed it to “The Maiasaur: An Interactive Exhibit” ... It actually says more... “Interactive” was kind of a buzz word at the time... everything had to be ‘interactive’ in museums... so it worked...<sup>4</sup>*

However, all of this wondrous interactive media technology was developed, ostensibly at least, to support something much more decidedly museological: the presentation of a notable fossil specimen acquired by the ROM. The news release for the exhibit would point out that this was not just any fossil specimen, but rather “the world’s best skeleton of an 80 million year old Maiasaur dinosaur”.<sup>5</sup> The media and visitors would not, as a rule, learn that this specimen was actually purchased from a private fossil dealer, Bearpaw Palaeontological, Inc. of Calgary, Alberta, whose principal market was public museums. Rather, the display content and the information supplied to the media attended solely to the person who discovered the specimen, Sherry Flamand of the Blackfeet Nation in northwestern Montana State. This was a small but nonetheless notable gesture in acknowledging both the discoverer and the aboriginal lands from which it was collected.<sup>6</sup> As it turns out, Bearpaw Palaeontological hired the Flamand family to collect the entirety of the skeleton from Blackfeet lands through an agreement the company had established with the Blackfeet Tribal Council. In turn the specimen was sold to the ROM in 1995, for a price somewhere between \$200,000 and \$250,000 Cdn, with a royalty returning to the Blackfeet Tribal Council.

These are points which received no attention in the exhibition and in its promotion. In addition to bringing attention to the monetary dimensions of contemporary museum operation—a dimension which is not generally displayed publicly—I mention this as an example of the selectivity and erasure that takes place in the presenting, and more pointedly,

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<sup>4</sup> Text from interview with Brenda Mikelsen, July, 7, 1998.

<sup>5</sup> ROM “Event” announcement, May 31, 1995.

<sup>6</sup> This point is notable in that the ROM has had a sometimes troubled history of relations with various cultural communities whose interests, histories, and identities have been inadequately or unevenly represented, and whose participation in the making of those representations has on occasion been peripheralized. See Riegel 1996.



in the crafting of a display. I will return to this selectivity and eliding process as it tells much about the contingencies operating in the making of contemporary, public histories of nature and life.

Returning to the exhibition conception, texts in the promotional material for the launch read in ways that would deflect impressions that the specimen-related work of museums and their researchers was in any way “prosaic”. They emphasize that even the skeleton was to be presented in a special manner. Unlike previous dinosaur displays at the ROM, which consisted largely of mounted skeletons or full-scale replicas set against dioramic scenes, this skeleton was not to be presented ready-made, a *fait accompli*, a black box of scientific knowing. Rather, the media release for the exhibition launch invited visitors to “watch history unfold” as “researchers work to free the remains of an adult and a baby *Maiasaura* from the rock in which they have been embedded for over 80 million years.” These phrases imparted not just a sense of process, but furthermore, the impression of salvation and miracle-working.

What these statements do not point out, is that *Maiasaura peeblesorum* already had an established public and palaeontological history dating back to the 1970s and 80s. That was when Montana palaeontologist Jack Horner and his colleague, school teacher Bob Makela, made the first finds of this kind of dinosaur, including enormous bonebed sites with the remains of thousands of these animals, plus some rather astonishing remains of “baby” *Maiasaurs*, nests, eggs, and even eggs containing embryonic bones.<sup>7</sup> Some details from those discoveries and their associated scenario are telling and worth describing before I continue with the discussion of the promotional programme.

An important line of palaeontological analysis on *Maiasaura* focused on dental wear patterns in hatchling *Maiasaurs*, and on the growth patterns indicated in the bone structure (i.e. bone histology). As Andreas Henson explained to me:

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<sup>7</sup> Horner and Gorman 1988; and Horner and Makela 1979.



*...You have these little animals that have poorly ossified joint ends of the limb bones, yet show wear on the teeth. So obviously, in the standard model, they weren't capable of getting up on their lower legs and wandering about and foraging for themselves. It seemed more likely that they stayed in the nest, and then somebody brought them food.*<sup>8</sup>

The interpretation which Horner and Makela drew from their review of the fossil material was that this kind of dinosaur almost certainly cared for its young.

The first technical article on *Maiasaurapeeblesorum* was published in 1979 (in that most preeminent of natural science journals *Nature*) with the title “Nest of Juveniles Provides Evidence of Family Structure Among Dinosaurs”. The scientifically ground-breaking article is notably marked by languages of “families” and “babies”: terms with as many human valences as animalian ones.

Certain rhetorical patterns in the article aid in strengthening particular familial affinities. One passage notes that it is not possible to assign the fossil material from the juveniles to a particular species:

*Because of the immaturity of the juvenile dinosaurs and the ontogenetic changes which probably occurred in the skulls during growth, a specific identification of the 15 individuals from the nest may not be possible until more specimens of older individuals are found. Characteristics of the skulls, however, suggest that they are generically similar to a large skull (Fig. 2) found within 100m of the nest. The large skull represents a new genus and species and, although it has some rather peculiar characteristics, is placed in the subfamily Hadrosaurinae.*<sup>9</sup>

On further reading, it becomes clear that Horner and Makela find enough similarities to assign a common genus. The sex of the animal was completely indeterminate on the basis of anatomical characters in the skull or the “little hadrosaurs”. What Horner and Makela do, however, as if to secure the association between the juveniles (or “babies” as they are referred to in some instances) and the skull of the adult found 100 metres away, is to feminize and maternalize the new generic name: *Maiasaura*. The article notes precisely:

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<sup>8</sup> Andreas Henson interview, August 4, 1998.

<sup>9</sup> Horner and Makela 1979:297.





Etymology: Maia from the Greek which means good mother, saura which means reptile (feminine)<sup>10</sup>

Out of a “jumble” of bones of juvenile dinosaurs and a dissociated skull we arrive at this particularly canonical, gendered family association, the baby-mother dyad, its veracity reinforced through an inscription which follows Linnaean rules.

Having already noted that the juveniles can only be described down to their genus, *Maiasaura*, which they argue is shared with the adult, later in the article the figure referred to in the previous passage is presented. [Fig. 23, page following]<sup>11</sup> Surprisingly, it shows *both* the adult skull *and* a skeleton of a juvenile. The caption implies a common species identification of the juvenile material and the adult skull:

Fig. 2 *Maiasaura peeblesorum*. a. Incomplete reconstructed composite skeleton of individual from nest (PU22400); b, holotype skull (PU 224405). (Scale bar, 20cm) <sup>12</sup>

By inscriptional accident or design, the specific affinity is bestowed in the journal *Nature*, the mother and baby dyad cemented all the more. In Austin’s sense, this is very much a performative utterance, where the palaeontologist as authorized subject in this most authorial technical venue announces the relation and effectively brings it into being.

This is also a moment of phantasmatic transference equal to that of Osborn’s naming of his prized “king of the tyrant saurians”. Horner, the palaeontologist, and Makela, the school teacher, had sought out the learned advice of Horner’s mentor, Princeton palaeontologist Donald Baird on the naming of the new Hadrosaurs. Today the new genus *Maiasaura*, is commonly translated to the English phrase “good mother lizard”.<sup>13</sup> For these men, parental care was sufficiently encoded in the Latin term, but this designation nonetheless sets limits

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<sup>10</sup> Horner and Makela 1979:298.

<sup>11</sup> Figure 23, Source: Illustration from Horner and Makela 1979:298. Illustration reproduced with permission of John Horner and *Nature*.

<sup>12</sup> Horner and Makela 1979:298.

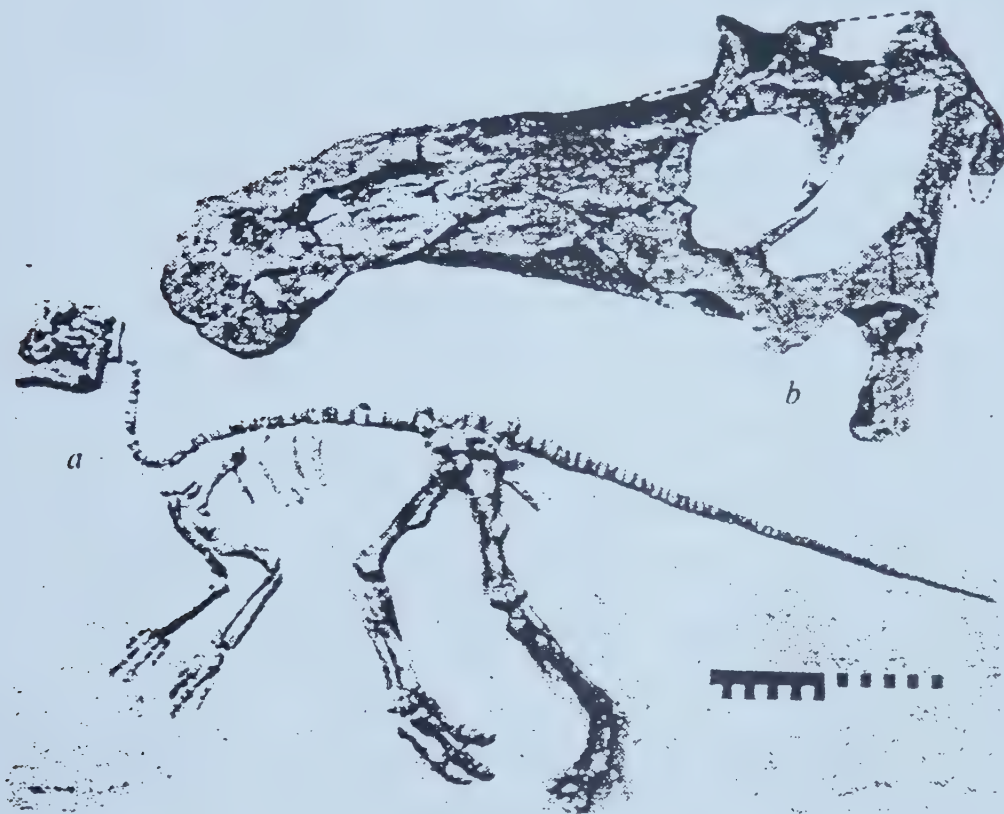
<sup>13</sup> Palaeontologist David Norman suggested a slightly different etymology (Norman 1991:181-183), where the name refers to “an old Roman mother goddess also known as the Bona Dea or “good goddess.” Norman adds: “The name was chosen deliberately...” in keeping with the “strong evidence that the parents looked after their young...”. As usual, the assigning of gender to the parenting role is left unexplained.



**Figure 23** (p. 169a)

**Holotype of the "Good Mother Lizard" & Composite Skeleton of Baby**

Source: Illustration from Horner and Makela 1979:298. Illustration reproduced with permission of John Horner and *Nature*.



**Fig. 2** *Maiasaura peeblesorum*. *a*, Incomplete reconstructed composite skeleton of individual from nest (PU 22400); *b* holotype skull (PU 22405). (Scale bar, 20 cm.)



on the gender alignment with female parenting, leaving male parenting—good or bad—out of the immediate meaning at the very least.

Even though Horner and Makela had done the lion's share of technical and scientific work on *Maiasaura*, and although those results informed so much of the Maiasaur Project exhibition, that point would not be presented in the final exhibition. The exhibit content would be presented as an immediate experience of scientific knowledge in the making. The omission of this history would, undoubtedly, enhance that sense.

In order to give the proper sense that scientific knowledge was unfolding in real time, the promotional materials indicated that an actual “working laboratory” was installed in the exhibit halls, flanked by various other dynamic display media. One or more technicians—who were sometimes referred to as “researchers”—would work on-site in the gallery laboratory over a projected period of two years to prepare out the fossil material still embedded in the sandstone matrix. This fossil-bearing matrix had been removed *en bloc* from the original locality of the find. The laboratory was intended to be the “centrepiece” of the exhibition, and as such the display was meant, quite literally, to be a ‘living’ case of science in action, intent on providing “the latest research findings about the Maiasaur and the Cretaceous world it inhabited.”

The media release text also attempted to ward off possibilities that visitors might find “plant-eating” dinosaurs uninteresting, by quoting the curator-in-charge of the exhibition, Dr. Andreas Henson:

*We'll now have a much better idea of what these friendly plant-eating dinosaurs actually looked like. Once the adult is recreated I think people will find her quite adorable, with her big eyes and duck-like beak. I'm counting the days until our Maiasaur begins to literally rise out of her bed of rock, piece by fascinating piece.*<sup>14</sup>

Again, the language of god-like re-creation and resurrection (even in the sense of Christ rising from his rock-bound tomb) appear, as does the language of emotional connection and

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<sup>14</sup> ROM “Event” announcement, May 31, 1995.





affect in the description of an “adorable” dinosaur. Upon reading Andreas Henson's vivid entreaty to the sentimental—however sincerely, strategically, or ironically he deployed it—I found myself humming the American, Disney-propagated conservationist jingle: “Be kind to your fine-feathered friends, for a duck may be somebody’s mother...”. This text in the news release presented multiple senses of what was promised in this display experience: visitors could witness researchers effectively ‘liberating’ the bones from their implied ‘confinement’ in the rock of ages, resurrecting the creatures bit by bit, and as if with the virtual power of deities, coming to “recreate” better than ever what this “friendly” dinosaur, “actually looked like”.

Yet, from these statements, it was clear that some things were indeed already known of this dinosaur: ‘her’ gender was already presumed in the language of the release and ‘her’ visage anticipated. This was to be a resurrection of a very individual creature, through a process of extraction, articulation, and reanimation. Considered in this complex manner, the specimen as yet unrevealed by the lab workers was, in fact, pre-revealed in the imagination of the curator-in-charge, and so many others on the exhibit team. In my experience, this is common in many museum exhibitions.<sup>15</sup>

The illustration used for the invitations and other promotional materials portrayed in a single view the entire drama which the exhibit appeared to promise. The image showed the entire creature ‘in transition’, a transmorphing being, partly naked skeleton, partly fleshed out, and more cryptically, partly cocooned in a strange grid-like envelope which turned out to be graphic technical aids used in the visual work of producing computer animations. The profile view set the animal into a posture that would be repeated throughout the actual

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<sup>15</sup> I have participated in dinosaur exhibit planning and development with palaeontologists during the early planning stages for galleries of the Royal Tyrrell Museum of Palaeontology in Drumheller, Canada (1983); for a large temporary exhibition at Spain’s Museo Nacional de Ciencias Naturales (1989); and for the Ex Terra Foundation’s “Dinosaur World Tour” resulting from the joint scientific research of the China-Canada Dinosaur Project (1987-88).



exhibit. The stance of the animal on all four limbs would become, for all intents and purposes, the iconic posture for this exhibition's Maiasaur. [Fig. 24, page following]<sup>16</sup>

Of course, dramatizing through gendering or imaginative reconstruction, is arguably a feature of the performance techniques of exhibit making and, more to the point, of media promotion. It is a means of 'capturing' interest, of providing 'hooks' to attract potential visitors to the museum. Such posturing does, however, have powerful consequences, not to mention underpinnings in cultured, human interests. These in turn have consequences in relation to the politics of science as Western society's favoured, most relied-upon vehicle for explaining and speaking on behalf of the natural, and museums as the favoured, most relied-upon arena for exercising this sort of advocacy. When publicly-funded research museums present knowledge, it is often taken seriously. When the natural matter encourages dramatizations along lines of this or any other sort, those too may be taken in public circulations as authoritative, legitimate, true.

As important here, both in Henson's release statement and in the illustration, is the conveyed sense that the skeleton would be the very object to be reconstructed, fleshed out and transformed into the moving, animated being before the eyes of the public. But as the Interpretive Planner of the exhibition, Jennifer Ross, explained to me, the interpretation of the creature *preceded* the specimen's preparation. The actual preparation would only take place over the two years following the finished, installation of the display itself:

*...it turned out we really did not have too much solid material to interpret from. The skeleton was not ready yet. So, it was a really weird exhibit in that way. It consisted mostly of material that we created, interpretive materials. Interpreting what?! This thing that had not happened yet!*

The implication, of course, is that there was a hidden knowledge disjuncture between a) the displayed preparation work which would lead to the mounted dinosaur skeleton, and b) the

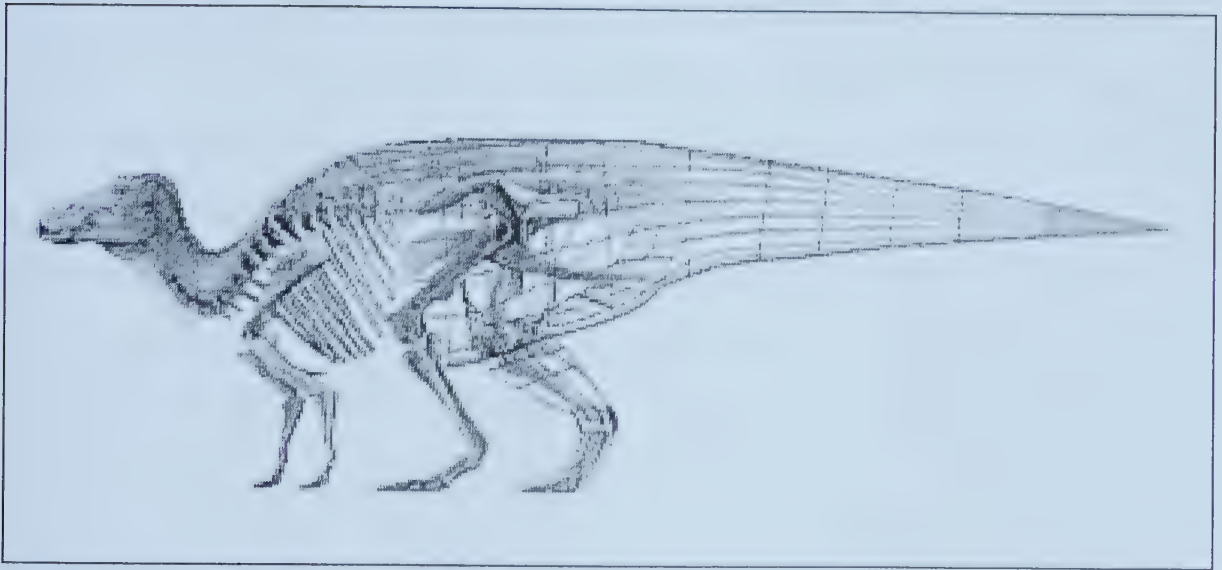
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<sup>16</sup> Figure 24, Transmorphing Maiasaur Image, Source: Royal Ontario Museum; reproduced with permission of the Royal Ontario Museum.



**Figure 24 (p. 172a)**  
**The Transmorphic Maiasaur**

Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.







interpretive content of the exhibition. The divide between the action of the laboratory, and the rest of the display was widening, though all would be presented as though no such divide existed, as though all that was presented was derived from research on this very specimen.

In terms of the media promotion, expectably enough, this disjuncture and paradox was never an issue—if indeed anyone directing the promotion even took notice of this. The marketing and promotions task was to accept the legitimacy of the exhibition, and then to isolate those characteristics most likely to ‘appeal’ to the intended audience. The interactive multimedia appeared to trump the lab in this regard. The news media coverage that followed from the promotions and the launching of the exhibition signaled that this was indeed the case. The news media immediately recognized that museums were going through some significant transformations related to how they communicate with the public. In contrast to previous understandings of how public museum exhibitions were expected to operate, this was for the ROM and for the news media as well, an exhibition with a difference.

### *“A Living, Breathing, Environment”*

Among the many broadcast reports resulting from the launch of the Maiasaur Project, the Audio-Visual production staff of the ROM felt that one in particular merited keeping. When, in 1999 (some four years after the launch of the exhibition) I approached David Ritter and Carl Dailey for a compilation of video material depicting the multimedia and computer graphics content of the exhibition, among the various clips on the VHS tape they provided to me was the four-minute news story produced by the Toronto-based CityTV. The report was created for CityTV’s “MediaTelevision” feature programme which explored the new uses of



media everywhere, but especially in Canada, most notably in Toronto, which was becoming something of a new media hub internationally.<sup>17</sup>

The video feature oriented around four components: the interactive multimedia displays and interviews with their producer, Walter Tomasenko; the Maiasaur laboratory plus interviews with the “Curator-in-Charge”, Dr. Andreas Henson; the advertising ‘angle’ for the exhibition including interviews with advertising consultant Les Grantham of Roche MacAulay and Partners Advertising; and the response of a number of young visitors to the exhibition. Notable in the piece is how it profiled a crucial series of “non-human/human” articulations, drawing attention to a series of key dyadic connections between the physical exhibition and specific actors: the interactive multimedia and the media producer, the laboratory with specimen and the curator, the television advertising and advertising consultant, and the exhibition and visitors. A further, hidden dyadic relation can be added, that being between the new programme and its audience. Here were some very direct indications of the power of this exhibition to produce a very extensive and socially potent network of connections in this particular cultural location and moment.

Shouldering a relatively small video camera herself, as if to signal the immediacy of the reporting (though of course she is being recorded by a second videographer), the CityTV reporter Sheila Cameron introduces the piece exclaiming how the makers of the exhibition were “bringing the 80 million year old Maiasaur to life”.<sup>18</sup> From the outset of this feature,

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<sup>17</sup> CityTV, owned by media “innovator” Moses Znaimer, is well-known in Canadian broadcast circles for its “hip” approaches to programming, along with a special savvy for new media. Presumably, the new media elements of the Maiasaur Project attracted the attention of the producers for its thematic affinity to their “MediaTelevision” series. Given market orientation of Znaimer’s CityTV, such a series could only be advanced as a viable sort of programming if it held particularly great public currency and appeal for prospective television advertisers. In other words, media-in-the-making was considered a marketable story-product for which there was an audience base. CityTV is owner-producer for such North American cable stations as “Bravo” and “The Discovery Channel”. CityTV was one of the media sponsors for the exhibition, along with CFTO-TV, 680 News, CFRB-AM-1010, MIX-99.9-FM, and The Partners media agency. The enlisting of these agencies was greatly facilitated by the overall sponsor for the exhibition, the advertising and communications firm, Padulo Integrated Inc.

<sup>18</sup> CityTV production MediaTelevision feature on the Maiasaur Project exhibition (First broadcast date: July 25, 1995). The story was re-broadcast at least once according to the ROM Marketing and Communications section’s report on the campaign.



the temporal moments of the dinosaur was set—80 million years ago, brought to the present—offering an almost supernatural sense of time suspension. The first images of people moving through the active, busy exhibit space then pans to a console crowded with children in front of huge screen with moving dinosaurs in the background. The scene is superposed with a text: “Walter Tomasenکو, Creative Director, Digital Media Services”.

Tomasenko, wearing a suit appears on screen commenting:

*We don't try to teach as much in museums as we did in the past...*

*What we do is we create an environment... a living, breathing environment, for people to enjoy, and to explore, and to understand, and to discover.*

In juxtaposing the “people” visiting with what “museums” now do, the “environment” he refers to is the total exhibitionary environment, not simply the media-generated scenic content of one or another display component. Immediately, a second visual juxtaposition is quickly presented in the video clip, as the image of another white male figure (though dressed more casually and without necktie) appears on the screen, the text identifying him: “Andreas Henson, Curator, The Maiasaur Project.” Though the report has given priority of narrative position to the multimedia components and their creative producer, the curator Henson states what is suggested to be the institutional priority, using the collective possessive form of “our” exhibit:

*The centrepiece of our new exhibit on the Maiasaur is the preparation laboratory, in which we're standing here... and where we're carefully cleaning up the remains of two specimens of this dinosaur called Maiasaura, where the bones are carefully removed from the rock, preserved with very expensive chemicals, and then ultimately made available for exhibits and scientific study... And we estimate that this will take two years...*

Henson is seen standing within a technically sophisticated fossil preparation laboratory, reminiscent of a surgical theatre with its great plexiglas viewing windows in the background. A technician is seen busying herself over a laboratory bench, then the picture cuts to close-ups of the technician gazing through a scope at the specimen which she is manipulating with





small instruments. Visitors look on through the glass at the activities within this exclusive space of “careful” preparation work, of “specimens”, and “expensive” chemicals. Immediately, a fast cut shows children leaning over a computer display of oddly shaped duck-billed dinosaur skulls. They groan as one intones, “ughh, look at the gigantic tumour!”. This tightly-edited moment, standing in stark contrast to the seriousness of a technical laboratory, provides the reporter with her opportunity to put the thematic point of her story to the palaeontologist: “The museum has become now a place of both learning and of entertainment...?”. To which Dr. Henson responds:

*That’s correct. Museums have become a leisure time activity. So it’s very important to compete with other leisure time activities and to provide entertainment. Plus it’s also often easier for children to learn complex things, if they’re presented in an entertaining and enjoyable way.*

Aside from his loaded admission that museums were ‘competing’ in the leisure entertainment industry, the comments by Henson underline a longstanding tension which museums have encountered as institutions understood to be at the interface of science and public, civil education.<sup>19</sup> The project of deploying museums as places for education was certainly underway in the English-language museum tradition in the mid- to late-1800s with the Kensington museums of London. In this instance, a highly accomplished scientist is welcoming entertainment into the presentation of scientific knowledge. In concert with Henson’s statements, Tomasenko’s comments on the turn away from “teaching” toward “providing an environment” for various sorts of visitor experience, suggests a general lessening of authoritative control of knowledge mediation and a granting of more choice to the visitor.

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<sup>19</sup> Allison-Bunnell 1998; Bennett 1995; Altick 1978. Allison-Bunnell discusses the tension in the early 1960s activities of the Smithsonian Natural History Museum, where science curators had more of an integral role in exhibit development, and with that came to embed their technical interests in the making of exhibitions and educational films. He also points out how that moment is now passed, as institutional shifts have seen an increasing specialization of the researcher, while exhibit development has in parallel become highly professionalized. According to Allison-Bunnell, the terrain between the two activities of Smithsonian, in this instance, has been overtaken by the exhibition professionals, while the researcher has become little more than an advising consultant.



Superficially at least, the report indicates that a working accord between researchers and exhibitors has taken place productively in the making of this particular exhibition. Underlying that accord is a commitment to certain modes of exhibitionary practice, reorienting both to a more totalizing environmental experience and to an increasing experiential and informational complexity. Tomasenکو emphasizes that visitors want more choice. Henson emphasizes that they want more entertainment. Both anticipate an enhanced quality of experience for the visitor which for Tomasenکو is to “enjoy”, “explore”, “discover”, and for Henson is “to learn complex things”.

Against an historical backdrop of tension over the primacy of scholarship in opposition to public visitation objectives at the ROM—something recounted innumerable times to me by professional and non-professional staff alike—this apparent reconciliation suggests a significant adjustment in the positioning of a leading Canadian public museum in relation to these revised priorities. That adjustment accelerated substantially at the ROM after 1997 and the arrival of a new director, Sidney Lawson. In international terms, the Maiasaur Project exhibition can be seen to stand as a case of a larger shift in the democratic civil functioning of museums taking place over at least the last two decades, toward what sociologist Andrew Barry refers to as “questions of consumer choice and visitor behaviour”.<sup>20</sup> Concurring with the observations of sociologist Roger Silverstone<sup>21</sup>, Barry notes further:

*In recent years, ...the liberal conception of culture as a means of individual improvement has had to run alongside—if not compete with—neo-liberal notions of culture as a consumer product. The traditional museum has been accused of being too paternalist, too dominated by the concerns of curators and the fetishism of the artifact, and too dependent upon public subsidy. What is said to be required is a new recognition of the competitive character of the visitor business in addition to the older preoccupations with scholarship and public education. The museum is “but a part of the leisure and tourist industries”.<sup>22</sup>*

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<sup>20</sup> Barry 1998:112. Also see discussions in Janes 1995.

<sup>21</sup> Silverstone 1992:41.

<sup>22</sup> Barry 1998:101. The quoted statement in this Barry’s quote is that of Kirby 1988:91.



Underlying the MediaTelevision news story on the Maiasaur exhibition, then, was a recognition that the ROM had made an incremental move into the leisure industry marketplace by offering exceptional forms of virtual mediation for museums. But counter to these sociological observations, here was a curator whose concerns had been brought into line with the market interests. Yet, he also recognized that to ensure that the interests in the specimen could be sustained—the conservative sense of “the fetishism of the artifact”—then much, much more had to be included in its mediation. The plan then, was for nothing less than the wholesale theatricalization of the regular technical preparation of the fossil specimen for the visiting audience. By theatricalization, I mean the moving of “behind the scenes” technical work into public display areas in a form which amounts to a viewing theatre. These seemingly contradictory points of what was theatre, what was science, and what sort of theatrical science made for good display substance became key matters that repeatedly pressed upon me throughout my ethnographic encounters at the ROM. Here, it was clear that the curator had complete faith that technical laboratory work would be quite entertaining, making for good performance—even though it was to be live, everyday, technical preparation, unfolding at a painstakingly slow pace.

Before considering further the possible tensions or resolutions concerning the mixing of the techniques of science and spectacle in the Maiasaur Project exhibit, it needs to be pointed out that the MediaTelevision story relied upon a public sensibility of what a museum ought to do. Certainly the ROM’s printed media briefing package had foregrounded the two major juxtaposed features of the exhibit—interactive multimedia and the “special working laboratory”—as well as the promised action from all this, which the reporter also passed on, that of “bringing the 80 million year old Maiasaur to life”. Bringing a long-dead creature ‘back to life’ has to be understood as meaning bringing it ‘virtually back to life’—again making up the distance between the dead fossil and the living re-presentation of the animated lifeworld of the dinosaur.





In the public cultures of dinosaur *natures*, this same claim to virtual resurrection was one which had been circulating widely since 1993 in the form of the virtual dinosaur animation work of Spielberg's *Jurassic Park*. In addition to being a story of how technoscience could bring dinosaurs to life, *Jurassic Park* presented other apparati which had parallel elements in the Maiasaur exhibit. *Jurassic Park*, as book and film, also presented the island theme park with plexiglas enclosed laboratories, computer interactive displays, mounted skeletons, excited children, theatrical presentation spaces—a rather total blending of high tech amusement park entertainment, and technoscientific action. Here, then, was a museum exhibition that appeared to be offering something just short of that offered by *Jurassic Park*, and yet in some ways considerably *more* than that of *Jurassic Park*, as it still continued to offer a “real” specimen. The media releases had cued to the production association with the makers of *Jurassic Park*, noting the use of the same computer animation technologies. This was an exhibition behaving quite seriously like a Hollywood film as well as a theme park, even going so far as to draw upon the same technology of production, and to a large extent, the same sorts of animated visual outcome. Here then for the media, as well, was a story ripe for the telling—extreme interactive animation technology meets live action technical dinosaur science in a tale of dinosaur resurrection, all located in what media-producer Tomasenکو had said was a “living, breathing, environment”.

### “The Biggest, the Best, the Most”

The television advertisements produced for the exhibition—their focus also drifting away from the lab and the specimen which curator Henson had emphasized were central—turned more toward the interactive and multimedia components in order to achieve the right



marketing results in a world of competitive leisure attractions. The ROM's marketing coordinator for the exhibition, Brenda Mikelsen, described the situation:

*You try and reach the people to get on their list of "five or ten things to do"...for, instance, we know that tourists stay between three and five days...they're interested in seeing "the biggest, the best, the most, the most outstanding"...you have to try to appeal to that...So, we wanted people to know it was different than what you normally get at the museum...it's interactive...it's not just standing there reading a label in a case...you come in and you can actually touch buttons, you could watch somebody pick away... You could DO...what you wanted...and the big screen up in the Maiasaur exhibit, where you could touch the buttons and you could make the Maiasaur run across the screen... You could make them do any number of things... We wanted people to go "Oh! That's kind of different for the museum!"... It's hands-on... <sup>23</sup>*

Having conveyed what she understood as a generic sensibility of visitor interest—reduced to a common fixation on “outstanding” attractions—she went on to describe how they played the television ads:

*You'll see we did two TV spots ...one with a dog running out of the museum with a big bone...and some kind of crazy-looking curators or technicians running after him played by actors...*

*Then another TV commercial with this guy, standing there, and the ground shakes and you hear a roar, he gets this look on his face, and then you see this big shadow coming at him as he's pressing different buttons on a console...So you get the feeling, that you can come in and touch a button and "oh you can actually maybe feel the tremors, hear the sounds".... So it was very interactive...*

One ad, then, was a tongue-in-cheek play on scientific fixation on the object of study—the fetishism of the specimen. The other was an equally tongue-in-cheek play on funhouse thrills in interactive form—the fetishism of the spectacle, especially the spectacle of the terrifying and monstrous. Aside from the main title “The Maiasaur Project”, neither ad presented anything about this particular specimen or dinosaur. Instead, they simply represented the two hyper-produced poles in the specimen-spectacle complex.<sup>24</sup> As

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<sup>23</sup> Interview with B. Mikelsen, July 7, 1998. All subsequent quotes by Mikelsen are from that interview.

<sup>24</sup> That polarization is discussed in the dichotomy of “wonder” and “resonance” by Steven Greenblatt (1991).



mentioned, already, the curator's intention was for the exhibition itself to provide the mediation work between these poles. Both of the ads fit with the media style established by the ROM in most of its media promotions of the last decade or longer—a clever, witty style, which aimed at savvy, well-educated folks. It was a style usually laced with a sense of the irony about what a museum, in a canonical sense, ought to offer.<sup>25</sup> CityTV's "MediaTelevision" story presented an interview with the advertising professional who had consulted on these ads, Les Grantham of Roche MacAulay & Partners Advertising, who added:

*In the advertising, we wanted to focus more on the interactivity than the show in general, because that was the unique thing about it. So what we did was show this poor guy who steps up...He's a part of the dinosaurs at that time period and really kind of gets thrown for a loop. This was also to appeal to a broad range of people. It wasn't just kids and it wasn't just adults. It's anyone who wants to be a part of something they could never really have experienced.*

The default here is to a notion of unmarked, undifferentiated "mass" audiences, and the equal default to the potential of being practically consumed by the spectacle, to be "part of the dinosaurs at that time period". I asked Brenda Mikelsen about how the media promotion for the exhibition had not give any cues to the thematic of either *Maiasaura*, "the life and times of a dinosaur", nor the point that this was a herding, nest-building, duck-billed dinosaur.

These themes were the planned interpretive account. Brenda Mikelsen pointed out to me:

*...I guess what we were trying to do was appeal to the masses...get them interested...and everybody knows the ROM has dinosaurs, but we were trying to put a unique spin on it...it's our "Newest collection"...and here we have "the Maiasaur, an interactive exhibit"...which to us meant...you come in and you see what's happening...and that was supported with a lot of the media coverage we got...You come in and you actually watch them pick away in the lab, which is really neat...it was great...*

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<sup>25</sup> Other poster slogans have included: "Dragon Food in a Tin" for a Medieval armour poster; "Visitors Velcome" [sic] for a bat exhibition poster; "The body is 2/3 water. Come see the other 1/3." for an Egyptian mummy poster; "Hockey Night in Upper Canada" for a poster with selected 18th/19th century Canadian skating artifacts; "Life before nintendo games" for a poster with antique toys; and "Some Constrictions apply" on a poster depicting a Boa constrictor.





Great as that was, for those in the Marketing and Communications Department, this was still about pitching the virtual experience, paying only peripheral attention to the technical components of science on display. This virtual interaction was something which they believed would appeal to “the masses”, here meaning the widest scope of their traditional audience demographic—largely middle income, central Canadian “families”, or in the summer, Toronto-visiting tourists, typically “families” again. This intended appeal translated into a media campaign which reduced meanings to elemental forms—the “newest bones”, “an interactive exhibit”.

I asked Mikelsen how well coordinated the various sections of the museum were when communicating with the public on the exhibit. She told me that the management of production and diffusion of ROM’s media materials was inconsistent:

*...ohhh... that’s sort of a tough question... we do find that the communication materials that go out are kind of fragmented... they don’t all look the same... Membership may take a totally different spin on something than Marketing would, or shops would... It’s getting a lot better...the V&A [Victoria and Albert Museum] is a good example of how they’re all well-coordinated...the membership direct mail looks very similar to our total advertising campaign... But at the time, the Maiasaur stuff, it was pretty much doing your own thing...*

Despite these multiple approaches concerning what was important or interesting about the exhibit, those in the Marketing and Communications Department were not in any way “blind” to the curatorial interests. For instance, it was understood within the Marketing and Communications department that “Project” in the titling of the exhibit meant the technical project of getting the fossils prepared out of their matrix. Commenting some three years after the exhibit opened, Brenda Mikelsen added:

*For the Maiasaura, the plan was two years uncovering, one year display...but upstairs, they still have the big screen and the cast...But the lab is no longer necessary...*

The lab was understood as a necessity for technical work on this specimen, but also as a temporary fixture that would not carry the exhibit—it was dispensable. It was not intended



to be an ongoing display, even though it was paid for through display budgets. Indeed, the bearing of these costs was a point of considerable internal consternation for those in charge of display planning.

As the MediaTelevision report closes, the reporter persists in her line of questioning about what the exhibit meant for museums as places of science, education, and objects in cases—questioning that followed quite logically from all the claims of the media releases and the advertisements. When interviewed by the reporter, curator Henson found himself underwriting the advertising campaign as much as the exhibit itself:

*People have sort of a threshold anxiety about museums because museums are dusty old places, and I hope that this advertising campaign, along with the exhibit, will dispel that notion and make museums an attractive option for people to spend their leisure time in.*

This was the major risk taken by Andreas Henson: the interactive media with which he was able to ‘sell’ the working lab to management, was also that which would have to be emphasized to bring in the crowds, in order to save museums (and science) from being consigned to the dustbins of public disinterest in an environment of leisure-time competition. In this sense, marketing and marketability were *performing* the display concept, shifting and reconfiguring the material outcome in the direction of the environmental, interactive experiences. The very definition of “museum” was coming under closer scrutiny, and with it a nervous spin toward media-attraction was starting to take place.

As far as the Marketing and Communications staff were concerned, the curator had, more or less, given his endorsement, as it was their practice to ensure that exhibition curators had a key role in the process:

*...The whole campaign, the curator would have seen all these pieces, and given his approval that it was accurate, that it well-represented what he wanted to do with the gallery before any of this stuff hit the streets...Same with all the media materials...the media release...The curator has a big hand in everything that goes out...We don't want any wrong information, and we want to make sure that everybody is comfortable with what we're doing... We don't want to promote something that's totally NOT what*



*people want... We don't operate in our own little bubble... We try and bring in as many people as possible... It's really important in an institution of this size where there's so many people working on so many different elements...*

My sense was that Mikelsen had identified the relevant points—yes, the curator had been consulted and had the chance to have input. But, as if to compound matters, she points out the more encumbering feature of the process, of the importance of keeping people involved “...in an institution of this size where there's so many people working on so many different elements...”. This was where control over media content and display configuration overflowed any single individual's interests, including the curator, or those of any single administrative unit of the ROM. In the interactions, the alliances made, the tolerances for the contingency of multiple players and approaches applied to multiple elements (e.g. display design, multimedia development, marketing, fundraising, collections management, interpretive planning, project management, curation, etc.), in the struggles to produce meaning and coherence in the display outcome, certain features would be more foregrounded, others backgrounded, in ways that no one could fully predict. What was getting foregrounded more and more was the orienting of the exhibit toward an experience akin to modern theme park attractions, and with the interactive animation components, akin to a particularly popular Hollywood film: *Jurassic Park*.

Ultimately, the evidence confirming the parallel *Jurassic Park* identification was also provided in the MediaTelevision report, as the reporter canvases the responses of children in the midst of their interacting with the exhibition. One boy, touching the interactive skull morphing screen, remarks “...well, we're just pressing the screen, and it just evolves!...”. Evolution becomes a technological reality with the ease of a touch. The next child speaks, fully cognizant of the regular mediation techniques of museums and what is new here:

*Usually at museums, they don't have much virtual stuff...but this... it's like really neat and everything with the dinosaurs walking it shows you how they walk and*





*everything...it's not really like a museum...it's more like, umm...yeah, like a video game, sort of...*

And finally, a third young girl brings the point home:

*It's not at all like a museum....it's like a really big Jurassic place!*

Her choice of “Jurassic” to signify the living time/space for this “Cretaceous” dinosaur points to the invented *Jurassic Park* of Crichton and Spielberg. That movie also generated a “place” that was ‘alive’ with dinosaurs, a tour, a site for interaction with life-size, running saurian creations and even, in one scene, a glass-enclosed laboratory as site for the “recreation” of living beings out of fragmentary source material. For the Maiasaur Project, the source material presented was the specimen ROM #44770, from a dinosaur which had lived 80 million years before. For *Jurassic Park*, the material was dinosaur DNA drawn from the digestive tracts of amber-encased mosquitoes which had fed on dinosaur blood comparable millions of years before.

For this young, freckle-faced, white, English-speaking, Canadian girl—most likely from a middle income Toronto household—Tomasenko’s wish for producing an environment had been achieved. Here she was, made small yet given power in this “really big” place of moving, push-button and joy-stick activated, full-size and animated dinosaurs, to virtually “make the Maiasaur run across the screen”, as Brenda Mikelsen had put it aptly. Here she was, in a living, breathing environment of real fossils, live researchers, television shows, of animated power tools, and imaginary worlds made real. The living, breathing environment had incorporated and enrolled her into its performative replay of the *Jurassic Park* adventure, which would lead her, in Penelope Harvey’s words, to become “inscribed into the exhibition” in an embodied, performative manner.<sup>26</sup> The shift to environmental interactivity, virtual worldmaking appeared to have provided the conditions which the curator had needed to sustain the relevance of scientific practice taking place in the palaeontological

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<sup>26</sup> Harvey 1996: 150; also see MacDonald 1993c.



laboratory. The question remained however: had something else of value been lost or diminished in the process?

### *The Circulating Matter of Dinosaur Palaeontology and the Effects of Media Fetishism*

What is striking about this enrollment of the *Jurassic Park* imaginary into the Maiasaur Project is how “learning” about and communicating ideas about this dinosaur is buried in a highly fused set of imaginings which mobilize the sensibility of these children: the power to morph skulls, the experience and cadences of playing a video game, the imagining of being in a “Jurassic place”. Chronotopic, that is time/space, worlds and ways of engaging them are what circulate, undergoing smaller or larger transformations at every moment of translation and engagement. Moreover, both the Maiasaur Project and *Jurassic Park* are visible expressions of the specimen-spectacle complex in operation—one located in an institution of civil action, the other in an institution of consumer entertainment action, though the two locales are increasingly blurred as the functions of each are increasingly shared. The visitor or viewer is drawn into the play of specimen and spectacle which collapses and fuses senses of fact with senses of fiction, those of reality with those of representation.

In the Maiasaur Project, however, the attention on the act of mediation, in the most McLuhanistic sense, has become foregrounded as that which is to be communicated. This attention is signaled in the case of the media producer with his transforming of the museum into “living, breathing environment”, the curator transforming it into a site for performing the “dynamic process” of palaeobiological techniques and reconstruction, for the visiting children transforming it into a “video game” or a “Jurassic place”, and indeed, for the



reporter herself who profiles these transformations in a story about the museum as, quite literally, a place of transforming multimedia.

The thumbnail MediaTelevision story certainly relayed the opposition of techniques of science against technologies of interactive animation which were contained in the carefully crafted media information package. The information package, in turn, had taken its cues from the actual planned opposing of these two sorts of experiences in the exhibition. This raises many questions about what sort of knowledge is actually constituted when visitors of many sorts engage contemporary exhibitions such as this, when the comprehensibility of how to engage the exhibition is in part at least, acquired by the visitor *elsewhere* in the wider landscape of entertainment and educational media experience. (I will be addressing the variety of sources of vision and comprehension which emerged during my ethnographic engagements in the coming chapters).

To summarize, I will now shift to discussing how the cases I have presented so far in this section help to bring home points made in the first part of the dissertation.

### Recalling that which Circulates

The first summary point concerns what it is that circulates, and how. This discussion picks up from and further elaborates those in Chapters 5 and 6.

Here, once again, is a case of the back and forth trading between museum science (as an active producer of cultured forms of nature and life) with more distributed public cultures of science. Truth and fact remain quite pliable and contingent in the mix, subject to the particularities of what is drawn upon by the individual in their moment of engagement. The knowledge carried in by the visitor combines and fuses with that of the knowledge produced by the museum and translated into exhibitionary form. Where one child uttering, “it’s a really big Jurassic Place” draws upon all the cultural cues that phrase might entail, she also





properly links her museum dinosaur exhibition experience to her Hollywood, theme park, or television produced experiences. Those are experiences anticipated, if only in the most general of terms, by the makers of the exhibition in advance. Some resilient, shareable materialities/phantasies permit this linkage to occur, circulating readily at this and several other moments of connection.

In particular, through a chain of dyadic connections—media and media producer, curator and laboratory, advertisement and advertising consultants, child and interactive display, etc.—the revisable phantasy of a living world of the past, experienced in the lived world of the present, has been a common performative resource. The shiftable, individually particular material-phantasy of the Mesozoic is distributed across these various dyads, emerging in utterances, technical action in the laboratory, animated reconstructions, imaginings of dinosaurs, the fossils themselves. As I have said before, it is an animating tissue of each dyad, allowing a relatively shared performative engagement. This is something more than what Bruno Latour refers to when he speaks of the “thread of networks or practices and instruments, of documents and translations” which can connect and so collapse the most local and the most global.<sup>27</sup> These various Mesozoic natures performed, imagined, and materialized also have to be taken into account, for they too have agency in the “thread of networks”. If anything, Latour overly backgrounds and erases the work of phantasy, the imagining work of the engaged humans in these dyads. *Mesozoic natures*, then, are exemplary forms of *culture* as a mediation and a flow.

Mesozoic natures are material and phantasmatic, and work as performative nexi, facilitating or constraining the exchanges of humans and non-humans across a very complex, heterogeneous (i.e. mixed), network. A case illustrating the phantasmatic Mesozoic (as a response to material practices) was offered directly from Andreas Henson, who told me

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<sup>27</sup> See Latour 1993:121, and Strathern’s dense discussion (1995:177-185) on the “local”, the “global”, and location.



how, since he was a child, he would imagine worlds and scenarios when reading palaeontological texts (and *any* text for that matter):

*When I was four years old, I got my hands on a copy of Augusta and Burian's Prehistoric Animals,<sup>28</sup> and I thought this was just the coolest thing ...I generally liked everything about the natural world, so I loved his paintings... thinking of these completely different worlds and these times far back in the past ...I really had a sense that this was something, like, really different ...yet at the same time, stimulated by this book, I started looking at other popular books on fossils ...I realized this was all based on these very fragmentary remains and that intrigued me ...this was something where you had these rare and precious objects that then helped you in your mind to reconstruct these ancient worlds.....*

*...When I read books then, as I do now, it's basically like a film moving before my eyes...I actually visualize the texts in visual images...*

With Andreas Henson's comments in mind, the circulations by means of phantasy and materiality can be rendered equally well in the dialogical terms of Bakhtin—where the *reader* is in dialogue with the *word*, the text.<sup>29</sup> Something occurs and precipitates as the reader exchanges with the word, at the moment of her/his engagement—an image, a narrative, a phantasy. Here, what Bakhtin refers to as “the word”, is replaced by the reading material, images, an exhibition, which also insistently constrain what may or may not take place. In thinking of that dialogue historically—as many dialogues taking place over time—Bakhtin writes:

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<sup>28</sup> The Czech artist Zdenek Burian was probably the most prolific painters of ancient life worlds of dinosaurs in Europe (see Augusta 1964). One of his major influences in the genre was Charles Knight. Burian's paintings appeared in many books, museums displays, television shows, and next to Charles Knight, may be one of the most highly circulated sources of reconstructed scenes and images of dinosaurs up until the 1990s.

<sup>29</sup> Also see Bakhtin's commentary in “Discourse on the Novel”, where he writes: “The word in language is half someone else's. It becomes “one's own” only when the speaker populates it with his own intention, his own accent, when he appropriates the word, adapting it to his own semantic and expressive intention. Prior to this moment of appropriation, the word does not exist in a neutral and impersonal language...but rather it exists in other people's mouths, in other people's contexts, serving other people's intentions: it is from there that one must take the word, and make it one's own...Language is not a neutral medium that passes freely and easily into the private property of the speaker's intentions; it is populated -- overpopulated with the intentions of others. Expropriating it, forcing it to submit to one's own intentions and accents, is a difficult and complicated process.” (1981:294).



*There is neither a first nor a last word and there are no limits to the dialogic context (it extends into the boundless past and the boundless future).*<sup>30</sup>

In the case of the Maiasaur Project, the visitor in the exhibit, the television producer making a media story, the scientist conceiving of an in-gallery laboratory, the digital media producer generating the apparition of a running-dinosaur computer graphic, or the child experiencing an interactive display, are each engaged in moments of dialogical interchange. That interchange may be termed a *zone of exchange*<sup>31</sup> between these various persons and the various machineries of communication, exhibition, and technical practice along with the litany of meanings they entail. At each interchange, some translation takes place. Still, what both precipitates or circulates in that zone—resolving as a figure, a picture, a relationality, a sensibility of “nature”—is that which may also be tracked across multiple exchange zones. When that is recognized, we might very well be able to make some claims about the status of those “circulants” (to suggest a new term) as simultaneously tangible and intangible elements of culture. This cultural matter, then, is what is transmitted and circulates robustly in material and phantasmatic form across the multiplicity of exchange zones in a given performative network. It approximately aligns and connects the everyday experience of a visitor in an exhibit with the sociotechnical imaginary of palaeontologists, with the intersecting interests of the museum work network, and with the complex workings and imaginings of the entertainment industry and its networks. The Maiasaur Project is just such network, linked to these other networks by that now-widely distributed performative nexus, the Mesozoic (and arguably, indeed, its historical counterpart, the lost world).

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<sup>30</sup> Bakhtin 1986:170.

<sup>31</sup> Here I have modified and somewhat neutralized the “zone of contact” concept of James Clifford and Mary Louise Pratt. Clifford 1997:188-219; Pratt 1992. Also see note 15, Chapter 6 in this dissertation.





The second summary point is on how the performative entity of the Mesozoic underwrites the emphasis of the high-tech multimedia experience, and simultaneously backgrounds or obscures other experiences. The extraordinary, recurrent attention given to the materialized environment or world where dinosaurs come to life, and where humans get to experience their resurrection virtually, immediately places emphasis on worldmaking, a principle constituent of modern spectacle. The difficulty for the curator was in providing a technical spectacle equal to the worldmaking, multimedia spectacle which was so reinforced by Mesozoic performance. The multimedia components came to be so overdetermined in the marketing campaign, in the press coverage, and in the exhibition itself, as to make that challenge all the more difficult. In effect, the dynamic process of the curator was at continual risk of being subordinated by this thoroughgoing multimedia fetishism. To compete in the leisure attraction sector, the Maiasaur exhibition was developed and positioned as a new multimedia spectacle, and as a move beyond the traditional fetishism of the museum, the fetishism of the specimen. The specimen ROM #44770 was gradually getting obscured behind all these efforts to produce the right combination of spectacles.

I use the terms of fetishism in the sense of both the commodity and Freudian fetish, for that is precisely how other marketing campaigns at the ROM, as well as that for the Maiasaur Project, have been conceived and managed. The promotional campaign for the Victoria and Albert (V&A) show “A Grand Design” (which profiled selected artifacts of *manufacture* from Britain’s Victoria and Albert Museum) is a case in point, as evident in the following conversation with Brenda Mikelsen:

*...Well the V&A exhibit...it's more of a female skew...30, 35 to 49 years of age...the skew is that females are probably more interested in this show than males...and to date, our research is showing we're getting more females, and we're getting the projected age range... So we focused on really beautiful objects, names like Leonardo da Vinci, Christian Lacroix, Vivian Westwood...*



The point was to identify an “audience market”, imagine the tastes of that market, and highlight those features or items within the exhibition which exemplified that connection between imagined desire and identified audience market. Here, even the object itself was obscured by the fetishist identification of recognizable human figures: the famed artist and two contemporary haute couturiers: Leonardo da Vinci, Christian Lacroix, and Vivian Westwood stand in eminently well for the objects, which don’t even have to be identified.<sup>32</sup> In the case of the V&A show, the emphasis was that of out and out high culture artifact and commodity fetishism. In contrast, the Maiasaur campaign had worked with technological, multimedia fetishism, *Jurassic Park* fetishism, and fetishism of the new in the form of interactivity which would displace ‘out-moded’ didactic, and object-oriented museum display practices. In the case of both exhibits, the marketing staff and exhibit developers would select and embellish the fetishistic element or entity that cut across and strengthened the marketing flow.

How much do these fetishistic amplifications of the Maiasaur exhibit—from the promotional visions of the Marketing and Communications Department to the feature programme of CityTV—correspond with the exhibition as it was planned or as it came ultimately to be executed? Well, to leap slightly ahead, I can say it corresponded closely in relation to the exhibitionary media deployed, and hardly at all in relation to the planned “story line” of the exhibit, which as I discuss in the next chapter, keyed in on the “good mother” thematic of *Maiasaura*. The Marketing Coordinator also told me that this theme was not where they felt their efforts to capture audience were best invested:

*...we were focusing more on the active nature of it ... the “good mother” is a nice story... but I don’t know if it’s as appealing as “Come in and punch buttons and roar and watch this thing run across the screen and make it do these things”...*

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<sup>32</sup> For the reader’s sake, the da Vinci object was one of his notebooks with mirror-writing, the Lacroix and Westwood objects were exclusive designer shoes. Shoes, of course, have long been taken as exemplary sexual fetishes.



The marketing and promotions now worked to background not one, but two elements of the exhibition: the interactive multimedia appeared to be superseding the laboratory and its dynamic process, the experience of interactivity and virtuality appeared to be superseding the ‘nice story’ to be told.



To this point, I have presented only a very partial introduction to the Maiasaur Project exhibition. The questions begin to multiply. What happens to the story of the “life and times of a dinosaur” when what is being conveyed is as much the media as experience in itself? What is the role of the specimen in this production? How could this be a “good mother lizard”, and how important would that be in the outcome? Did the laboratory actually work as “the centrepiece” for others beside the curator? What sort of connection was made between the lab and the animations? How much did the interests of the many co-developers of the exhibition come to reside in the outcome? While I return repeatedly to these questions in the coming chapters, several preliminary cues may be taken from a critical examination of the planning process which informed the making of this exhibition and the natures it entailed.





### “Need to Say, Need to Know” From Translation to Articulation

*There were two phrases in this department that we picked up a few years ago from the plain language movement in government...“need to say,” and “need to know.” ...I thought, “that’s it!” Sometimes there is perceived here to be a huge gap on the scientific, curatorial side of this. My side of the museum is concerned with both. Are we driven by the curator’s “need to say”, or are we driven by the “need to know”, which means the audience, what THEY need to know? With a lot of the curators, they know they are working in a museum...they are well aware of it and will tell me WHY they are fascinated with this stuff...about copper, which is a recent example... Some of them are just naturals. If they were all naturals, I would not have a job. No, I would still have a job because it is a lot of work...relating “need to say” and “need to know”...*

—Jennifer Ross, Interpretive Planner for the Maiasaur Exhibit (March 1998)<sup>1</sup>

*There was a real political battle in advance of the design really happening... in both a grab for whatever percentage of the budget, to put into the multimedia, versus the lab...there was always this kind of rivalry...In the end, in spatial terms they kind of take up the same amount of space...*

—Sam Enright, Designer, The Maiasaur Project (July 1998)<sup>2</sup>

### “Let us talk about soup!”

This chapter considers dimensions of the specific planning process for the Maiasaur Project. I introduce aspects of those dimensions with some comments from the Interpretive Planner for the Maiasaur Project, Jennifer Ross. Ross was charged with consulting closely with the curator, researching the content, developing the storyline, coming up with an overall

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<sup>1</sup> Interviews with Jennifer Ross, March 30, 31, 1998. All other interview quotes from Jennifer Ross are from those two dates.

<sup>2</sup> Interviews with Sam Enright, July 29, 1998.



exhibit coherence, and ultimately preparing the text elements for the various display components. What follows is the text of a conversation between myself and Ross in March of 1998, where she offered a sense of the chasm of translation that often confronts folks charged with the task she faced in the Maiasaur Project and many other exhibit planning situations. It is emblematic of the conditions of public exhibitionary practice in those late 20th century public museums in cities and nations of privilege, where curators and exhibit developers must find the means of collaborating in the development of exhibitions of nature, culture, and otherwise. I began with a question related to the Maiasaur Project, but Jennifer quickly turned to another matter—soup:

BN: *It strikes me that the lab was the location where you could see the real specimen and the real equipment, a live technician...this stuff was being revealed at the moment, you could experience it. Is that a guiding philosophy development of exhibits? To present, to give that sense of the authentic? Or is it to tell stories? Or what else is it?*

JR: *Sometimes it is both. Sometimes they are at war with each other. Particularly, I am thinking of the decorative arts, which is a whole other type of work. Its specimens, its objects, its artifacts—frequently, the classic conflict is the curator wants to just put the stuff out there so that people, their kind of people, like collectors, can come in and say “Wow, that was made by So-and-so” “Wow, that’s one of the original...wow” ...You can get a real thrill out of that if you are into, you know, pottery or something. “Holy Geez, they have one of the four sets that was used by Louie the Whatever!” On the other hand, people in my section tend to say, “there has got to be more to it than that”.*

*...My favorite story is about an exhibit of soup tureens. This was a traveling exhibit. Campbell’s Soup owned an incredible collection of soup tureens. Each of them required a case THIS big [gesturing with hands]. These were ultra lavish things. The curator had organized them.... into Medieval - you know, Pre-medieval, and early stuff...Baroque, Rococo, and Neo-classical and Regency. He organized them...and that was IT. And he was going to say who had made them - a very important silver smith, or a very important ceramics factory, Limoges, or something...what kind of decorations were used, whether it was gold chassis or cul-de-bleu, and that was it. I said “We should say something about what they were eating out of them, what soup, what was put in these things.” It just stopped him in his tracks. He said, “I don’t know anything about what they were eating!”*

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...I thought, “woah!”...this huge gulf here, where I saw something - was it actually served at the table, was it used at the side, did they actually use these things? You know, the way people have fancy vases. Did they actually use them at all, and what were they eating out of them? Why were they so fancy? How DID they use them? And he was looking at them strictly as a connoisseur, and I thought, “how do you bring this together in a harmonious fashion?”

...So sometimes the object’s authenticity is seen to be the draw. And sometimes you think - that is not enough! That is too limiting, people deserve to know more. The general sense in my whole section, and certainly with [the managers] Lydia and Wendy the view is, “let us talk about soup!” I kind of leaned on him. I was nice, but - soup! That is kind of a classic break sometimes.

BN: So, you guys here tend to be animators, you are animateurs?...to bring things, in a sense...to revive them?

JR: Yes, and make them relevant. That kind of sense— “Why should they care?” What about your twenty year olds? ...It’s fine if they’re here for a date. What about these people who are NOT connoisseurs? They still come here. They deserve more - we could tell them more...make this kind of neat without lecturing to them.

The mission I heard consistently in discussing the planning of the Maiasaur exhibit with many staff in the Interpretive Planning section of the ROM—notably an all-female staff, in contrast with the predominantly male curatorial and exhibit production staff—was that of making museum objects *relevant*. In the case of the tureen exhibit, relevance was created by animating the tureens with the missing soup. In this way, relevance and animation were intimately related. The object had to be fitted or located into a larger context, and it was best if that context had something to do with the experience of the visitor, to make it “kind of neat without lecturing”. Twenty year olds ate soup too, even if not from ornate Baroque soup tureens. By bringing soup back into the action, the bowl from which it was eaten was activated, *lowered* from precious thing to active thing. Even the bowls which twenty year olds did eat from would be conjured—or indeed the Campbell’s soup they ate from those bowls—as these contemporary equivalents contrast with those in the exhibit. Even





Campbell's Soup company benefited from sponsoring this exhibit, not simply because a competent ceramic artist made beautiful vessels, but more powerfully, because people then and people now have to eat soup out of some thing: this was the marketing advantage to be had. The logic of Jennifer's project was clear: *animation* is an important route leading to *relevance*, and *relevance* connects visitors to the things in exhibits (and to sponsors). Fill the bowls with soup!—that was the sought after effect.

In the case of the Maiasaur Project, the curator quite clearly came with a sense not merely of how to fit the fossil specimens into a systematic typology or a natural historical trajectory, but also of how the bones articulated, how they could be fleshed out, how to revive them, to imagine them in an entire world moment. The curator had told me that he could visualize the creature as though it were living and interacting, even when reading a book or when he found a diagnostic fragment while prospecting in some isolated part of Uzbekistan—where his most recent field activities happened to be taking him. As I have pointed out, this exhibit was, in more ways than one, a *pre-animated* thing. Much of the story came from achievements of palaeontologist Jack Horner, and Andreas Henson was a curator who had some clear ideas about how to mobilize those achievements.

When brought to exhibit planners who believe that “people deserve to know more”, would they simply adopt the curator's outline, and present it verbatim? Would that even be possible in any event? What else might be at work in the process, augmenting the curator's intentions and imaginings in the translations, diverting, enriching, upsetting them? This chapter outlines how the planning “baseline” for the Maiasaur exhibition came into being, and how that baseline continually shifted along with the dinosaurian life world it would convey.<sup>3</sup> I refer here to the official documents and planning tools which were developed

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<sup>3</sup> I use the term “baseline” in the relative, or relational sense, as this baseline was continually moving, being dismantled, re-erected, reinterpreted throughout, so that it would fit with its outcome: a museum exhibit which mediated fossils, the commitments of a curator, public sensibilities, institutional commitments, etc.. Baselines, even in scientific practices of biology and ecology are meant to be ‘fixed immutable reference points’, but before a baseline can be established, one has to set out the terms for what the baseline is to be the basis for, and what instruments and practices will be used to establish the fixity of



through the communication between the curator and the exhibit planning team of which he was a member. These are the documents which change hands between the curator, the technicians, and all the exhibit planners, designers, managers, builders, etc., all of it in a sometimes coordinated and occasionally random way.

## (A) Official Statements: Unruly Circulations

I present these “official statements” as particularly forceful steps in translation, contouring how the dinosaurian natures of the Maiasaur Project came to be configured. They lead to so many other actions which redirected that configuring both in the making of the exhibition, and in the engaging of it by its audiences. The enrollment of technical, administrative, and display instruments, plus the networks of other palaeontologists, is also signaled through this and subsequent descriptions. The temporal period concentrated upon in this discussion is that from 1993 when the project was first conceived through to early 1995, when the plans guiding physical production were completed.<sup>4</sup> Some limited reference to subsequent actions—e.g. production, installation, visitor engagement, physical outcome of the exhibit—help to anticipate some of the effects of these earlier translations. In addition, I include some specific retrospective commentaries on the display’s Working Lab in operation, which aid in demonstrating its crucial effect in the ultimate exhibitionary outcome.

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the baseline. To a great extent, a baseline is a condition of the outcome it is to be applied to, which is what makes it so very effective as a baseline in the final analysis. Latour calls this a “Metrology [which] is the name of this gigantic enterprise to make of the outside a world inside which facts and machines can survive.” Latour 1987:251. For a very detailed discussion of how this works see Latour 1999:24-79 (i.e. Chapter 2, “Circulating Reference: Sampling the Soil in the Amazon Forest.”).

<sup>4</sup> I must add a note on the necessary contingency of reports. As the interviews drawn upon mostly took place in 1998, the quoted commentaries on the documents and actions have to be recognized as retrospective. Some reimagining on the part of those interviewed of what took place has to be acknowledged. Nonetheless, the correspondences between the various accounts, documents, and the exhibit result give a reliable sense of the agencies at play, the complex of interactions and mediations, and the emerging effects. For a discussion of the what I mean by “reliability”, see Ch. 7, note 8 in this volume.

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The approximate process of developing an exhibition was described to me by staff in the Exhibit Programming department. Jennifer Ross described how the department was involved in one stage of this process, the development of the first key document for an exhibit, the *exhibit brief*:

*Within our department, once an exhibit is approved and is going to go ahead, they produce - this changes all the time, of course - an exhibit brief. It answers lots of questions.... "Who will produce it? Do we have the staff? When do you want this thing to open? How long do you think it will take to do it?" It's not so much, "How much money do we have?", but rather, "Where does it fit into the schedule?" So - it only comes to me - when I get the brief, it says: "this many square feet, here is the budget, here is when we expect it to open". Then all the other departments start kicking in. The media relations, they need a long lead time to start building up a campaign and letting the papers and the TV stations know. They need time to plan their material.*

The exhibit brief would outline generally, the content, interpretation, design parameters, marketing plans, costs. It was typically developed in advance of the actual interpretation and design work, and in this instance, was developed on the basis of a "curatorial proposal" where, as Jennifer noted, the "curator will submit a two page proposal that says, 'Here is what I am thinking of doing, and here is why.'" The Maiasaur Project had its own idiosyncrasies apparently:

*...With this one, I don't know the politics of it that well. By the time it got to the exhibit brief stage, certain decisions - and this is very unusual - about how we were going to present information were already decided. In this case, it was as if some of the high-tech stuff that was highly promoted by the advertising department - some of that had already been decided by someone who is not here anymore. His specialty was real high-tech computer interactive stuff, and he was really keen on that. I think that he had been talking - I am sure he had been talking to Andreas before hand, and saying - "If you were to do this exhibit, it would be really cool if we had this gigantic dinosaur, and these other things where we could punch buttons on it." So it was kind of weird for me to get what is called an exhibit brief where they had already made so many decisions!*





The implication that the multimedia components were not simply of marketing and promotional value, but had been pushing this exhibit forward from the start was becoming increasingly apparent.

Once the brief was in place the interpretive planner could begin her work:

*...The brief came with Andreas's curatorial proposal...he is a very organized guy, very thorough. You can see I was making little notes to myself. The whole package was worked up in advance by Wendy and by Lydia, the head and the assistant head. ...Then it came to the team. There are all these people who are involved in it. Early on, Mark Alton was the actual designer, the architect-type designer. I was the exhibit interpretive planner. My responsibility on any project like this is to go over the material that is being proposed to be in it. The curator might be saying they are going to put all these skulls in and they want to have a skeleton, I want to have this and that. I would usually say — "I think you might want to have a few more skulls", or "I think it might be better not to start out with that stuff. Why are you doing this?" Ask questions.*

The interpretive planner, then, had this particularly crucial trading role with the curator, and with the entire sequencing of the exhibit development process for that matter. The following flowchart recreates the document flow in the development process from the time the curator supplies a proposal to the initiation of design and production.

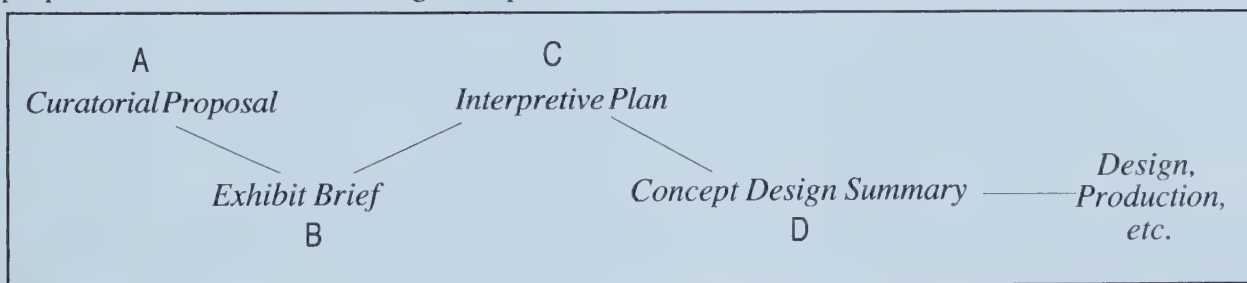


Diagram 1: Sequence of Official Planning Documents for the Maiasaur Project

I asked Ross directly, “where are you in relation to all this... are you with the curators or the design team?”:

*I am in between. I go back and forth, like the messenger. And the design team cannot start working - they will say, “where is the plan?” They need it before they can start making those decisions*



From this position, the interpretive planner was also well backed by her exhibit programming colleagues, [see team photo, Fig. 25, page following]<sup>5</sup> and a great deal of moving back and forth of documents in the revising process takes place. Notably, this group was charged, more than anyone, with attending to the matters of audience definition and responsiveness. Much of this, as I found out, was based on some generalized museum visitation statistics, combined with an anecdotal sense of who the probable visitors were and how they might react to different sorts of media and content.<sup>6</sup>

Jennifer Ross remarked on her own approach:

*... I sometimes say I am an 'audience advocate'. My responsibility is making sure the scientific information that is being proposed for the content is organized in a way that is best matched to the way the public might take it in.*

When asked how she would achieve this goal of *organizing scientific information* into the *content* which visitors could *take in*, Ross presented me with a diagram. The depiction presented her pivotal translation of the curator's original statement, which preserved his emphasis on the centrality of the fossil Maiasaur specimen, which she now refers to as Henrietta<sup>7</sup> [Fig. 26, page following]<sup>8</sup>:

*...I will show you what I eventually ended up with, as a result of looking at all this stuff that we were given. I came up with this little chart. This was a draft of an interpretive plan...the central idea is this particular dinosaur, this particular specimen.*

*...This was, I said, "everything that is proposed to go into this exhibit - it was like we have a post in the middle, and there is a leash on it, and there is a limit to how long I will let this leash go". This specimen and that, you can only see it in the lab. [pointing to*

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<sup>5</sup> Figure 25, Maiasaur Team Photo: Source, ROM, Illustration reproduced with permission of Royal Ontario Museum.

<sup>6</sup> The Interpretive Programmers used general museum visitation statistics. Daily visitor statistics of a very approximate sort were kept by front desk staff of the museum, sampling age range and group composition, place of origin, matters of why visitors decided to come to the museum, whether there might have been a particular topic or exhibit of interest. But these were very gross indicators of the overall museum visit. The ROM's "dinosaurs" were often cited as a key attractor and a high proportion of those indicating this interest came in some sort of adult, child groupings. Lacking any more detailed interrogation of the visitors, these groupings were described loosely with the term "families".

<sup>7</sup> "Henrietta" was a name used occasionally by staff for the specimen, and originated with the company that collected the specimen, Canada Fossil.

<sup>8</sup> Figure 26, Hand drawn circle diagram, Source: J. Ross.

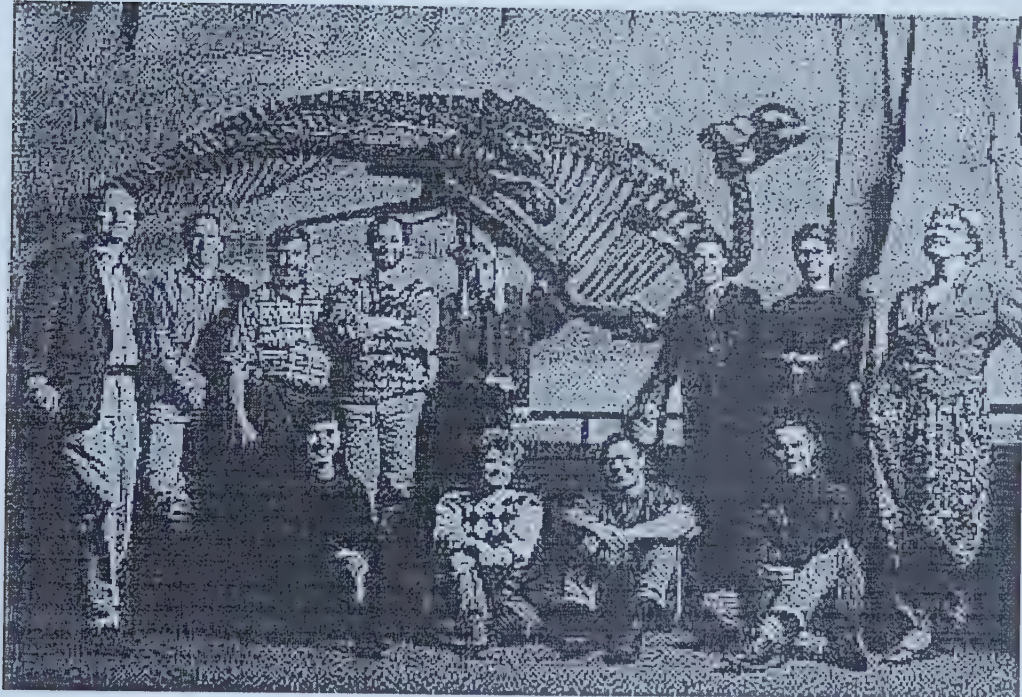


**Figure 25** (p. 201a)

**Maiasaur Project Team Photo**

In front of Edmontosaurus skeleton in old Dinosaur Hall

Source: Royal Ontario Museum, Photograph courtesy of the Royal Ontario Museum, © ROM.









**Figure 26 (p. 201b)**

## Jennifer Ross's Concentric Diagram for Exhibit Planning

Collapses time/space, vernacular/technical conceptions, & physical display sections

Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.

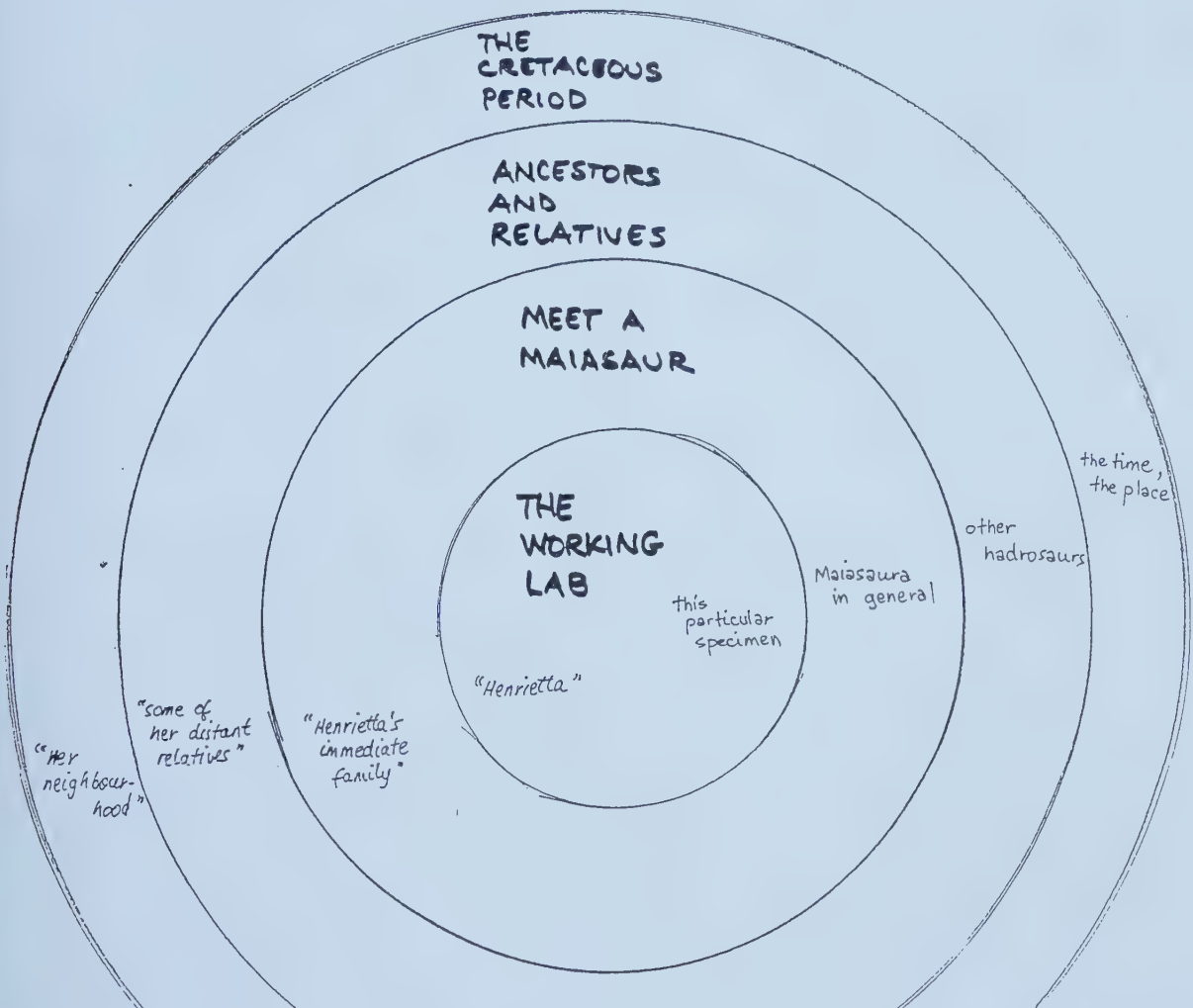




diagram now] *Then there is a section - these are actually sections of the exhibit. They became sections. I called them “Meet the Maiasaur” and the concept was Henrietta’s immediate family, which are Maiasaurs in general.*

*...Then we had “Ancestors and Relatives,” which are other hadrosaurs, some are her distant relatives. Then we are getting further and further away - but the focus had to be on this particular specimen, all the time, trying to relate it back to why are we interested in this particular specimen. So it was not going to be an exhibit about Maiasaura. It was an exhibit about this - the finding of it, all this stuff.*

*...The most distant one was information about the Cretaceous period. I just said it was her neighbourhood. It was to help visualize it, and so on.*

For interpretive planner Ross, everything had to have a tie-in to the specimen—this one diagram was the working document that provided the fullest, simplest sense of the conceptual continuity for the exhibit. Even the worst behaved dog would be kept close to homebase with this leash—or at least that was the sort of power which Jennifer hoped this depiction would have. All of this was part of her effort to keep things connected to the specimen. In this sense, the term “centrepiece”—which Henson would come to use in media interviews to describe the specimen at the time of the exhibit launch, and in speaking to me four years after this diagram was drawn—had a very particular and important history.

It is also notable that, while on one hand Ross had preserved the curator’s central priority on the lab and specimen, she had also begun to translate matters effectively from technical and impersonal terms to those very personal ones which, presumably, she felt the public might be able to understand. The specimen (ROM #44770) obtained the name “Henrietta”—a name originally assigned to the specimen by Bearpaw Palaeontological, the company which collected the skeleton. In order to keep track of what specimens they were working on or speaking about, Bearpaw Palaeontological assigns an alphabetical name to each of their dinosaur specimens, in the order of the find over time. Henrietta then, was the eighth dinosaur they collected. At present they are at ‘V’ for Veronica (a juvenile Hypacrosaur), and they intend change to masculine names when the first alphabetical sequence is finished.



The connection then to the gendered name “Maiasaura” is coincidental, but that coincidence all the same only serves to reinforce the gender identification here.<sup>9</sup>

The name Henrietta was used regularly in office planning documents up until the January Concept Design Summary in 1995, by which time the nickname faded out of usage—to the relief of several people in Exhibit Planning who were concerned about being ‘scientific’. By then, however, the gendering not just through the scientific name, but indeed through the everyday, playful identification of the specimen had been well-established. This gendering did not have technical grounding. The curator had noted to me that it is very difficult to identify the sex of dinosaur skeletons, and that no such identification had been made with this one.

Following Ross’s translations further, the dinosaur genus “Maiasaura” was entailed into “Henrietta’s immediate family”. Other kinds of hadrosaurs would be “her distant relatives”. The time and place of the Cretaceous was “her neighbourhood”. Aligned with each of these translations was the display component which would contain the elements and the translations. This depiction of concentric circles illustrated, in as direct a fashion as one could ask for, the process of translating bones in the ground from specimen to spectacle, technical to vernacular, content to audience, a singular form of dinosaur life to a living world in time and space.<sup>10</sup> In creating this well-integrated diagram, Jennifer Ross launched a set of translations which corresponded at each step with the curator’s own translations. This articulation was what would ensure that the otherwise inanimate fossil of a potentially “boring” plant-eater would be animated, and so made relevant—soup.

It would seem from this that planning processes surrounding the specimen, the scientific practices, the lab and the curatorial intent in general were more or less secured. However,

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<sup>9</sup> Personal communication with president of Bearpaw Palaeontological, Inc., Aug. 10, 1999.

<sup>10</sup> The matter of family relations is taken up in some depth in the following chapter, ch. 11 “A Perfect Time to Raise a Family”.





once again, Ross raised the point that this exhibit upset expected planning and development roles:

*It is like an editing job, in a way...it is an intellectual editing...sometimes it is organizing the intellectual content of it. ...[except]this show was atypical. By the time Maiasaur came to me, it had all already been decided. We were going to have this video and that video, and this. I went - "umm?...ohh!?...okay" . Things are getting weird these days. We are doing things so fast that we don't produce documents like this any more.*

So, in this case, the smooth process of planning the content of the exhibit had been disrupted, a point confirmed by many others with whom I spoke. Moreover, the general sense around the museum was that development and planning processes in all projects being worked on in 1998 were becoming increasingly unstable and atypical, just as they had been with the Maiasaur Project in 1994 and 1995. Much of the more recent disruption was attributed to uncertainties arising through moves to implement different planning approaches being implemented by the newly hired ROM director, Sidney Lawson, who began to press those approaches upon the line managers in the institution.

As in the Marketing and Communications department, the enacting of the curator's intentions and visions was considered to be a serious objective in the planning process. These, in turn, were translated through the exhibit brief, via diagrams like that prepared by Ross, then through the interpretive plan, next through the design, and finally in the production management phase. In this phase the exhibit would be transformed from imaginings on paper into two-dimensional, three-dimensional, spatial, visual, and electronic forms. What I had gathered was most disruptive to the regularity of this process, however, was the degree to which the new interactive multimedia was garnering steadily increasing attention, especially in relation to the budgeting for the project. One of the Maiasaur exhibit designers pointed out:

*The interactive component was a done-deal before we even began our design... A lot of people had their backs up over the funneling of so much money to the multimedia... whole components were canceled... A major graphic component on the research was just*



*dropped... It was basically about field research, how and why the matrix was prepared...the budget wouldn't allow it...*<sup>11</sup>

The fissures between the multimedia and the scientific-technical components were beginning to show in the planning of the project, and continued into its design phases. Some pointed to the “‘just get it done’ attitude” of the Project Manager (who was in charge of production schedules and budgets), or to lofty arguments occurring at the level of Senior Management. The point was that somewhere in the management decisions, the alignment of resources with the multimedia components had taken increasing precedence, even to the point here of eliminating components which would have complemented the curator’s initial hopes of presenting a “dynamic process”. I am reminded, however, that the curator’s words were, specifically, a “sense of a dynamic process”. So long as the lab was retained, presumably, that sense could be achieved.

The official exhibition content statement was eventually summed up and presented in a subsequent series of drafted and redrafted documents ultimately presented under the provisional title: “Concept Design Summary”, and was meant to guide the entire Exhibit Development Team.<sup>12</sup> The package I work through here was the final version (January 20, 1995). The document was provided to me on March 3, 1998, along with several earlier drafts of the “Exhibit Brief”, and Ross’s diagram of concentric components. The Concept Design Summary had been distributed by the Associate Director for Public Programs to no less than 24 individuals ranging from the Museum Director through to staff and managers in eleven different departments or sections of the museum.

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<sup>11</sup> Interviews with Sam Enright, August 1998.

<sup>12</sup> I found that different individuals used names of documents inconsistently, mixing up interpretation statements, exhibit briefs, concept summaries. The “Concept Design Summary” usually contains outlines of 1) the administration of the project including team members, schedule and budget; 2) the interpretive approach; 3) 2D and 3D design approach, floorplans and sketches; and, 4) Related activities such as donor recognition, special events, marketing and publicity plans. In the case of the Maiasaur Project, a further section was included to outline Multi-Media and audio-visual programs, this being something of a new venture in this kind of programming for the ROM at the time, even in 1995.



The “Interpretation” section, which was drafted by Jennifer Ross—though modified by the project managers in the final form—describes the projected experience as a total, including the story-line, media used, major sections, and communication goals. Other sections were drafted by respective design and media specialists. In the discussion below, I draw upon this document, the earlier “Exhibit Brief” documents, and drafts of the “Curatorial Proposal” (first draft, December 3, 1993; revised draft March 1, 1994)<sup>13</sup> written by exhibit curator, Dr. Andreas Henson. My main source remains the Interpretation Statement, as it would be a key nexus-defining statement for the entire programme.

### Enrolling Maiasaura's World : “Summary of Interpretive Approach”

Aside from a “wayfinding” system to orient visitors to the exhibition within the museum, the exhibit was to have an introduction and three major “sections”, each with several display “components”. The most spare, concise summary of the exhibit’s material and intellectual content was the framework that presented in the Interpretation Statement of the Concept Design Summary. It read as follows:

#### ORIENTATION SCHEME

- Name and Subtitle, Brief concept, Dates
- Where to find it

#### INTRODUCTION TO EXHIBIT

- What the Exhibit is About (*graphics; scale model*)

#### THE CRETACEOUS PERIOD

- 1a, A Visit to the Cretaceous (*animated video*)
- 1b, Plants and Animals (*exhibits - skulls & fossils*)

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<sup>13</sup> December 3, 1993 Memorandum, “Re: Curatorial proposal concerning an exhibit featuring the preparation and mounting of the skeleton of the Cretaceous duckbilled dinosaur *Maiasaura*”, from Andreas Henson, Associate Curator, Dept. of Vertebrate Palaeontology to Sylvia Fleming, Associate Director, Public Programs”. March 1, 1994 “Revised Version...” from Andreas Henson to Lydia Chisolm, Manager, Exhibit Programming.





## MEET A MAIASAUR

- 2a, Impressions of Maiasaur (*huge interactive video*)

## THE WORKING LAB

- 3a, The Palaeontology Process  
(*lab; video; exhibits; hand-on-specimens*)
- 3b, The Story of this Specimen (*video*)
- 3c, Progress of the Work (*diagram*)
- 3d, Skull Specialization (*interactive morphing video*)<sup>14</sup>

In the most general sense at least, all of these sections and their noted components would be completed in the final exhibit. Also contained in the Concept Design Summary was a technically-drawn floorplan for the exhibit. [Fig. 27, page following]<sup>15</sup>

The Interpretation Statement noted three goals for the exhibition: (1) communicating “a wealth of existing knowledge about Maiasaur and the times it lived in”; (2) stimulating “interest in Maiasaur by showing an actual specimen in the process of being cleaned and assembled”; and, (3) “dramatically” evoking “a sense of the once living animal”. Notably, any causal relationship between the action of specimen preparation on display, and the other knowledge and dramatizations of the animal being displayed was not expressed in the Interpretation Statement.

The Statement identified “the audience” very roughly as “family groups containing children between the ages of 4 and 13”, with no specific reference to what a “family group” was, other than it would include children aged within the noted range. Some expectation of how they would “behave” was noted in the Interpretation Statement:

*...we can expect visitors to be in small groups, either family or friends, and to use the exhibits in a conversational way. They will point out things of interest to each other, read exhibit text and explain things to each other, ask each other questions about what they see and hear. Constant interruptions will be normal, as will random sampling of different exhibit elements.*

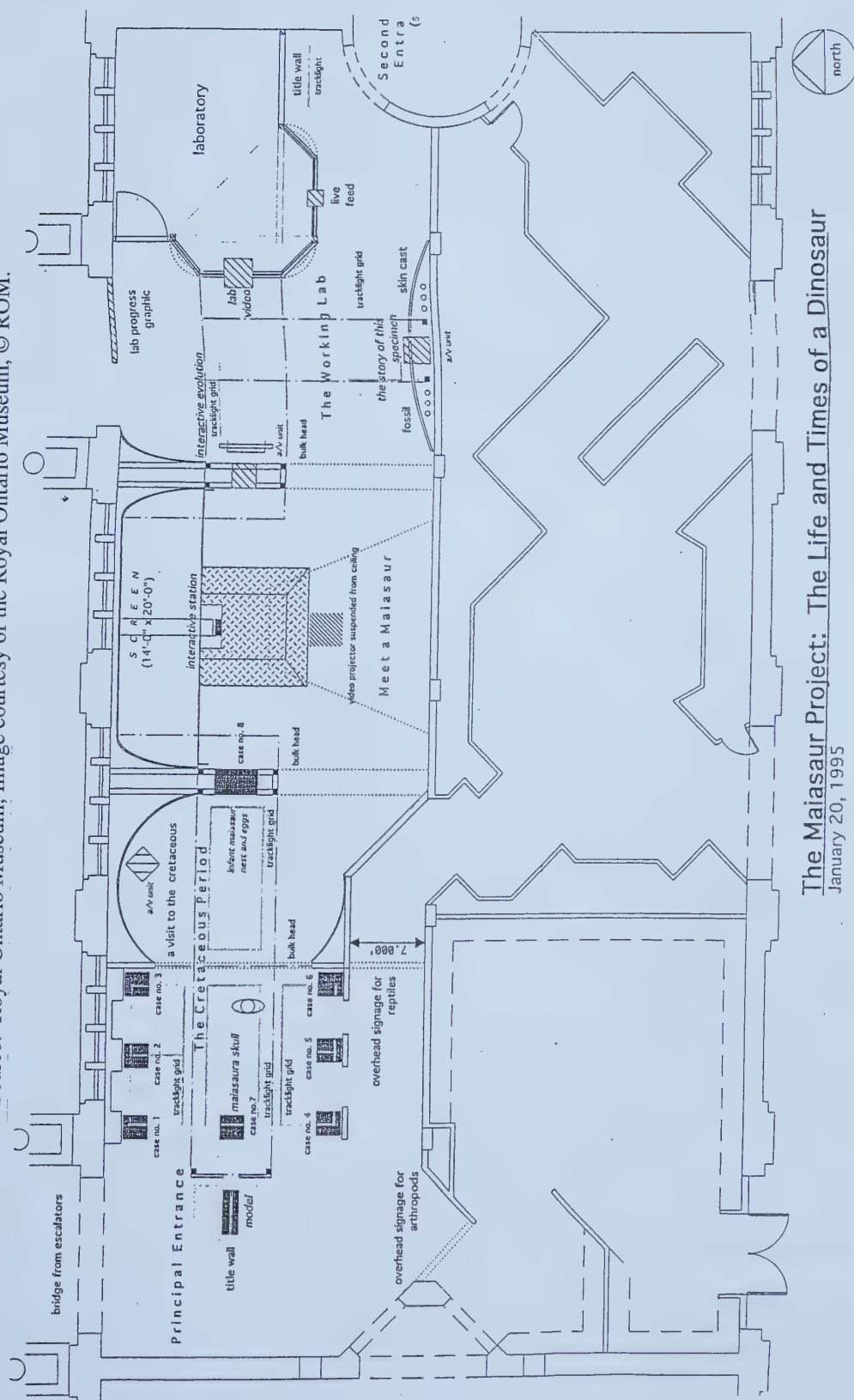
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<sup>14</sup> “Concept Design Summary”, p.7 [n.b. emphases with bold and font sizes approximates that in original.]

<sup>15</sup> Figure 27, Exhibition Floorplan, Source: ROM; Illustration reproduced with permission of ROM.



**Figure 27 (p. 207a)**  
**Maiasaur Project Exhibit Design Floorplan**  
 Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.



**The Maiasaur Project: The Life and Times of a Dinosaur**  
 January 20, 1995



Gender, ethnicity, national origin, and any other indicators of individual identity were fully unmarked in this homogenizing description of who would attend the exhibition.

However, the film *Jurassic Park* was used as an experiential standard for considering how to present *Maiasaura* to the visitors/audience, cueing to anticipations that a Hollywood movie-going audience and its expectations would have to be contended with. The Crichton and Spielberg productions had impacted deeply on the planning process. The Interpretation Statement noted how the film had the effect of:

*...raising the public's expectations of special effects and dinosaur animation. Because Maiasaura was not a fearsome bloodthirsty hunter—it was a herd-living browsing plant-eater noted for the care it gave to its young—it is not appropriate to overdramatize the presentation.*

The contrast here with a “fearsome bloodthirsty hunter”—using highly-charged language right out of the discursive lexicon of frontier dinosaur collecting and the phantasies of Henry Fairfield Osborn—is quite telling. The killer dinosaur was being used as the benchmark for considering how *not* to present “a herd-living browsing plant-eater noted for the care it gave to its young”. Some restraint in dramatization was being called for. Quite obviously, the concerns were directed at the power of technologically-sophisticated animation media to generate something which could easily ‘overdramatize’ the presumably less, but nonetheless somewhat, ‘dramatic’ life and behaviour of this particular dinosaur.

The implicit challenge here was how to counter the excessive spectacle of the dinosaur-as-killer that had been generated historically through the mass configuring and replaying of dinosaurs like *Tyrannosaurus rex* and *Velociraptor* as “fearsome bloodthirsty hunters” in the dioramic, theatrical spaces of museums and popular movie-making. As noted in earlier chapters, Osborn, Knight, and Hollywood had long ago deployed, popularized, and stabilized such images. This left a predicament for future museum curators and exhibit developers. Finding alternatives to the fearsome dinosaur which could still draw an audience was one of the recurrent challenges in this project. The clear distinction drawn here was





between two mediation networks, representable through the equations:  
<Hollywood+imperial science+colonial adventurism+dramatization+bloodthirsty killer dinosaurs> versus <ROM+authorized science+nurturant plant-eating dinosaur>.

Curator Andreas Henson had stated the communication goals soberly, with similar interpretive restraint, in his first proposal to develop the exhibition by means of a set of simple, yet highly-loaded questions which the exhibit would answer or at least pose:

- *What were they like? - Dinosaurs as living animals (behaviour, feeding, locomotion, growth, social structure)*
- *Where did they live? - Interpreting the world in which the dinosaurs lived*
- *How do we know? - Retrieving information about the history and past diversity of life on this planet from the record of the rocks.*

On comparison, it becomes fairly clear that the interpretive goals and the physical exhibit sections had been shaped over the following year into responses to each of Henson’s questions. I have summarized these translations in the following table:

Questions from the Curator (Dec ‘93)	Response - Interpretive Goals (Jan ‘95)	Response - Interpretive Sections (Jan ‘95)
<i>What were they like?</i> Dinosaurs as living animals (behaviour, feeding, locomotion, growth, social structure)	Evoking a sense of the once-living animal	“Meet a Maiasaur” Displays
<i>Where did they live?</i> Interpreting the world in which the dinosaurs lived	Communicating knowledge about Maiasaur and the times it lived in	“The Cretaceous Period” Displays
<i>How do we know?</i> Retrieving information about the history and past diversity of life on this planet from the record of the rocks	Showing an actual specimen in the process of being cleaned and assembled	“The Working Lab” Displays

TABLE 1: Planning Translations of the Curator’s Intent

While there is an apparently striking correspondence here, even a seemingly elegant coherence, these are only general paradigmatic associations. Each translation, even here,



already signals significant transformations: ‘how do we (i.e. museum scientists) know’ is far more complex than a specimen “being cleaned and assembled”, and that in turn is but one limited set of actions that takes place in a working lab. Some of the more elaborate translations that would be enacted were already being motioned to in Ross’s circle diagram, with its “families”, “relatives”, “neighbours”, and “Henrietta”. That diagram was the first draft “interpretive statement” to follow on the curatorial statement, and it preceded the official Interpretation Statement in the Concept Design Summary. By the time that the latter appeared, no physical display existed per se, and between January and June of 1995 an additional set of translations from textual statement to physical display would yet have to be achieved. As I will be discussing in subsequent chapters, a great deal more *and* less came to reside in the outcome, and even moreso in the ways that the exhibition would be engaged and interpreted by visitors.

### The Curator’s Public/Scientific Strategy

Notwithstanding the multiple translations which would ensue, the curator’s central motivation hung on the stressed point of mobilizing around the expected predominance of the “killer-dinosaur” in the public imaginary. Henson would later explain to me how the purpose of the exhibit was not merely to counter that expectation with the opposing example of plant-eating dinosaurs, but also, in presenting a creature which displayed nesting and other sorts of social behaviour, to promote a new appreciation of the complexity of dinosaurian life:

*It becomes useful because you start thinking in a sophisticated fashion about dinosaurs as once-living, complex animals that did a variety of things. You similarly start thinking of nature as a complex thing... You know, nature’s not black and white... There are not ‘bad’ animals and ‘good’ animals... There are not primitive brutes, and you know, a bunch of sophisticates... It’s the first impetus to think of the world around you in more differentiated manner....*



*...I think that what came through was that you have to think about dinosaurs in a different way—dinosaurs are not just these lumbering vicious brutes; dinosaurs were part of an environment, an ecosystem; this ecosystem existed in a world very different from today... and all of this has an historical component—witness the exhibit where you can change an Iguanodon skull into all kinds of other saurian sculptures....*

Dinosaurs, in this new historically shifting, ‘ecosystemic’ scenarization of the Mesozoic, were becoming much more highly “differentiated”, more plural, and more able to coexist in conditions of biotic differentiation. This was a significant turn from the ‘survival of the mightiest’ logics of Osborn’s eugenics imaginary. Osborn had enlisted the fossil specimen of *Tyrannosaurus* into his Mesozoic world conception, and in doing so provided a case for his contemporary eugenic human world logics, his “agenda for antiquity” as Ronald Rainger called it.<sup>16</sup> The Mesozoic was and is an effective machinery for capturing new resources, including human narratives and interests, in symmetry with its acquisition of newly discovered non-human fossils. Henson explained to me how his colleague Jack Horner had, in effect, enlisted the first finds of *Maiasaura* fossil material into newer conceptions of the Mesozoic world, but for different reasons than Osborn, as one would expect:

*...Well to him, I think the significance of the find, was that he realized based on this find, that dinosaurs were behaviourally much more complex than people had been giving them credit for ...and this came at a very auspicious time, because this was the time when the great debate was raging about ‘are dinosaurs hot-blooded versus are dinosaurs just big, over-grown reptiles’ and of course, an advanced mode of thermo-regulation was seen to be intimately tied to more sophisticated behaviours, anatomical adaptations, that could not be understood in a traditional, orthodox reptilian model, and so on...so, to have evidence that seemingly puts duck-bill dinosaurs—this specific duck-bill dinosaur *Maiasaura*—beyond what we thought was typical for reptiles, was then seen as evidence favouring this new revolutionary view that dinosaurs were these very advanced, very active animals... So to him, that was the main agenda, and that’s why his discovery resonated as much as it did...<sup>17</sup>*

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<sup>16</sup> Rainger 1991.

<sup>17</sup> Additional articles related to *Maiasaura* or hadrosaur nesting behaviour include: Horner 1982; Horner 1983; Horner 1984; Horner 1987:51-63. Also see Carpenter 1982.





The resonance with this new agenda in dinosaur bioenergetics and behaviour was so powerful at the time for Horner, that innumerable international news stories followed his discovery including articles in *National Geographic* and *Time Magazine*, as did publications in the journals *Nature* and *Science*, large grants, and in due course, a MacArthur Fellowship.<sup>18</sup> Horner had captured into the Mesozoic not just some new fossil material but in symmetry with the fossils, certain narrative material of a rather contemporary human sort: the possibilities of parental care, family living, peaceful co-existence. This was the very sort of matter which could advance him in the mutual arenas of publicity and disciplinary palaeontology.

In effect, what Andreas Henson did in choosing to obtain this “large, spectacular, and scientifically invaluable”<sup>19</sup> skeleton of *Maiasaura* as the topical key to this exhibition, was ally with the revised ecosystemic principles amplified by Horner’s successes, in order to alter public fixations on dinosaurs as bloodthirsty monsters.

Through the mutual aid of phantasizing, and exhibitionary materialization, the Mesozoic diversification was extended to the publics, and the familial phantasies of the public were incorporated in turn into the Mesozoic, attached as they were to this new dinosaur kind. By cautioning against the over-dramatization of the multimedia animations, possibilities of over-comparison with *Jurassic Park* (which had bloodthirsty dinosaurs aplenty) would be diminished, and, it was hoped, the scientific authority of the display would be increased. The entire Mesozoic world of *Maiasaura* was mobilized as Henson’s ally in this way, proving simultaneously that the ROM was involved in advanced palaeontological research on dinosaurs.<sup>20</sup>

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<sup>18</sup> Only one other palaeontologist has received a MacArthur Fellowship, that being Harvard scientist, historian, and science popularizer, Stephen Jay Gould.

<sup>19</sup> Quote from versions of curatorial proposal of A. Henson, December 3, 1993 & March 1, 1994.

<sup>20</sup> Following the points on enframing from Callon (1998), the Mesozoic is a “metrological device”, which allows the capturing of the right matter, its hybridizing with the right human matter, to advance science, scientists, and nature in particular directions. In true colonizing fashion, it incorporates material according both to human and non-human exigencies. In this way, it works very much like capitalist expansion, always adding in new resources, and justifying that process as it goes.



Demonstrating that he made a clear connection between public interest, the new specimen, Horner's *Maiasaura*, and the revised palaeontological knowledges, Henson also felt that *Maiasaura* would be construed as a "friendly" dinosaur by most children. He pointed out:

*...as far as kids are concerned—and in this case we played this very consciously to the family audience, who, at that time demographics identified as our key audience, and I think they still are—children think of dinosaurs in two categories...there are 'friendly' dinosaurs, the kind of dinosaur that has all the dinosaurian attributes, except its not fierce, therefore its a safe dinosaur ...and then the vicious killers. So, it's like 'friendly dinosaur versus vicious killer' ...Maiasaur clearly falls into the first category—it's a 'friendly dinosaur', it's a plant-eater, and so by implication, as far as children are concerned a 'friendly dinosaur', a dinosaur you could possibly keep as a pet, sort of like "Dino" on "The Flintstones".*

So, while there was a sense that the ferocious dinosaur had to be displaced from the imaginary, it was done with a recognition that there was a pre-existing binary aspect of the imaginary which could be reduced to "friendly dinosaur versus vicious killer". In this way, the existence in the imaginary of the vicious killer presupposed the effectiveness of this curatorial communication goal to extend a revolutionary way of thinking to the public. Quite aside from this, the curator continued to have an interest in carnivorous dinosaurs, an interest which reached far back into his childhood:

*Actually, I always had more interest in meat-eaters [chuckling]...the reason being was that, when you look at the diversity of the natural world...the meat-eaters seem intrinsically more interesting...like there's a lot more involved in being a meat-eater, than being a plant-eater...because basically when you're a plant-eater, you're just this huge digestive device...you forage...the plants don't run away...you just walk up to them, you eat them...the chief problem, biologically speaking, is how to digest them...but with a meat-eater, you know, most of your food is still on the hoof.....it takes complex behaviors...it takes a certain amount of planning...and it takes special adaptations to track down, subdue, and process prey... so all these extra steps... whereas for a plant-eater, there's just nothing to track and subdue, it's just process.....*



I puzzled over the apparent contrariness of it all—here was an exhibit about a complex plant-eater, *Maiasaura*, the “good mother lizard”. Henson had previously told me his preference to have collected a carnivorous dinosaur. It was beginning to appear that the Maiasaur was a strategic default, one to which Henson could in due course turn his research activities. At the same time, this also reaffirmed my sense that the binary lives in the phantasmatic terrain of palaeontological practice, where many contemporary dinosaur scientists were quite likely to concur with Henson’s point that meat-eating is “intrinsically more interesting”, and plant-eating “just process.” Maiasaur, then, was the next best thing to a meat-eater both for Henson’s palaeontology and for the ROM’s display ambitions.

Nonetheless, this all demonstrated how highly cognizant museum-located palaeontologists can be in imagining the predilections of the “public”. In this way, the science itself was being calibrated to the predicted audience. Andreas had told me many times that he would go into the galleries to watch visitors interacting with exhibits, and Jennifer Ross confirmed that many curators did such things:

*A lot of them are out there, talking with the families, like on “Family Sundays”. They get roped into it, but some of them are keen, they love it. ...They know that they are working in a museum, they know that they are not working in some isolated lab somewhere.*

Based on their rather commingled observation and imagining of visitors, the scientist’s and the planner’s conceptions of the audience were now performatively realigning dinosaur life in the exhibition, in line with that of the scientific work undertaken by others on *Maiasaura*, the ‘friendly dinosaur’. Much as the *market* had performative force in shaping the advertising campaign, now the *audience* was enlisted into the performative shaping of this exhibition of the natural world. This could only take place *because* the research objects enlisted into the process (fossil eggs, nests, altricial bones, and this associated ROM specimen) presented an opportunity for this. In this manner, Mesozoic dinosaur kinds could more easily be divided into ‘friendly dinosaurs’ and ‘vicious killers’. The materialization





and the corresponding agency of that binary was intensified through this complex historical flow of public-scientific action.

### Detailing the “Interpetive Approach”

Continuing with the Interpretation Statement, it offered guidelines for general “Exhibit Characteristics”. While *over-dramatizing* should be avoided, the Statement suggested nonetheless that the exhibit should be “dramatic, streamlined, easy to comprehend quickly, and they should stay close to the central theme.” In addition, it noted that, “People should be able to ‘get into’ an experience without preamble, but feel satisfied ‘getting out’ fairly quickly.” The sense garnered here is about the temporal conditions of embodied experience in the exhibition space, as that of a continuously fluid experience, similar to a ‘ride’ in an amusement park, where the drama produces ‘highs’ and ‘lows’ of experience, where it is over before the visitor knows it, where they need no introduction but have been prepared only to be surprised. It was noted in an earlier “Exhibit Brief” document, that the expected rapidity of information absorption by the visitor would suit “family” audiences, “so that adults can pick out information easily and respond to children’s questions”. Again, the anticipation of what the audience expected would put limit on how much “dynamic process” of scientific techniques would be conveyed. The statement continued with details for each section.

**“Orientation Scheme”** As mentioned, in addition to the physical, spatial components of the exhibition proper, the Interpretation Statement started with an “Orientation Scheme” conceived broadly to include all those actions ‘outside’ the exhibition space which aided in “getting the word out about the existence of the exhibit and the concept behind it”. This would take in publicity, advertising, and posters as the means of attracting visitors. The



publicity would be complemented inside the museum with “Graphics Signage” meant “to guide people to the entrance(s) and confirm they are on the right path while getting there”, such as an image of the hadrosaur head, or dinosaur footprints painted on the floor. A secondary set of connections was to have helped visitors connect to other galleries like the permanent Palaeontology and Life Science galleries, noting, “A cast of *Archaeopteryx*, illustrating link between dinosaurs and birds, could signal the way to the Birds Gallery for example.” These secondary linking illustrations were never actually produced.

**“Introduction to Exhibit”** Confronting a spatial arrangement that enabled five different ways for visitors to enter the exhibit (all of which would have entry signs), the “Introduction to Exhibit” emphasized two “main” entrances which would concisely convey an “introductory message”. One of those would include a “scale-model cast” of the Maiasaur to establish a “powerful visual image of *Maiasaura*”, an “appealing landmark” that would “‘slow down’ the visitor long enough to comfortably take in the introductory messages.” Once more, the planners were predicting not just what the messages would be, but more to the point, the very manner in which visitors were expected to behave. The exhibit shaping presumed to know the visitors as much as it did the Maiasaur which it was meant to be displaying. The introductory component centred on (1) reiterating the exhibit’s concept, (2) providing a visual image of *Maiasaura*, and (3) communicating that this particular species was the subject of current work in the ROM.

Although the Statement noted the multiple ways in and through the exhibit, depending on which entrance the visitors used, it proceeded all the same to describe the exhibit in an ideal linear, narrative plan: from the scale-model “Introduction”, through the “Cretaceous Period”, to the “Meet a Maiasaur” section, ending with “The Working Lab”, the supposed “centrepiece” according to curator Henson and the ROM media releases. In actual spatial



terms, the centrepiece in this plan of the exhibit was the “Meet a Maiasaur” section with its “huge interactive video”.

**“Section 1, The Cretaceous Period”** After the Introduction section, what I would term the *chronotopical work* of the exhibit was to take place in “Section 1, The Cretaceous Period”, the primary purpose of which was, “to create a picture of the time in which this Maiasaur lived”. The mixing of time and space by translating them as abstractions into pictorial vision—creating a ‘picture of the time’—would take place here. In the terms I already presented, this would establish the proper performative relation of visitor in the contemporary moment with *Maiasaura* in the Mesozoic moment of the Late Cretaceous. Very generally described display components were ordered under the headings “A Visit to the Cretaceous”, and “Plants and Animals”.

The “Visit” components were ‘interactive animations’ which established a timeline by presenting: (1) the changing shapes and placement of the modern continents of the earth over 80 million years; (2) a video animation of “the Cretaceous environment” using existing animation footage; and (3) an “essential package” placing *Maiasaura* in the Cretaceous world and presenting a coherent story of nesting, herds<sup>21</sup>, migration, care for young, the proliferation of flowering seed-bearing plants, and questions of adaptive connections between such plants and *Maiasaura*. Complementing these interactives, the “Plants and Animals” components would entail an array of showcases with skulls of “Cretaceous neighbours, two friendly and one not”, and another array with skulls of other Hadrosaurs

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<sup>21</sup> The term “herd”, though more familiar as applied to mammals, is used consistently by dinosaur palaeontologists in both technical and non-technical discourse. Dinosaur palaeontology can be quite flexible in freely re-applying zoomorphic (or, as I’ve been discussing, anthropomorphic) terms in this manner. This is all rather dualistic and mimics contemporary mammal behavioral terms quite directly: the term “herding dinosaurs” is only applied to herbivorous dinosaurs who are thought to have amassed gregariously in large numbers, whereas, carnivorous dinosaurs, to my knowledge, have not been described as “herding” creatures. Instead, quite remarkable inferences about small carnivorous dinosaurs such as *Velociraptor*, *Dromaeosaurus*, and *Deinonychus*, have led palaeontologists to describe them as “pack-hunting”—a term typically associated with the social predatory behavior of living mammals such as wolves, and hyaenas.





(i.e. Maiasaur is a Hadrosaur, or duck-billed dinosaur) for comparison of “size and common elements”.

It is worthwhile here to interject with some points on changes in the plan that took place between the distribution of the Concept Design Summary in January and the final installation of the exhibition five months later. According to the Statement, an empty case was to head the “Cretaceous Period” space—the eventual receptacle for the skull of the specimen being prepared in the laboratory at the opposite end of the exhibition. The literal ‘absence’ here was meant to mark the ongoing work of the *Maiasaur Project*—an *in vivo* project, happening in real-time while the visitor was present in the exhibit. Curiously enough, this empty case element would not ultimately be produced and installed in the exhibit. Was it that this *presentation of an absence* turned out to be antithetical to the positive, visible, material presentation work expected of museums, an exhibitionary *horror vacui*? In its place, a number of smaller specimens including some skin impressions and small limb bones would be displayed in this showcase, ensuring that the materiality of the Maiasaur specimen was indexed, at least minimally. Also, an additional—and as it turns out crucial—element was incorporated into this hall of showcases: a ‘static’ graphic showing a time line cueing “80 million year ago” as the moment when Maiasaurs lived was mounted on a pedestal in the most central point in the space of this first major section.

Somewhere in the production phase, a decision had been made to provide this extra redundancy for the time-orientation message—time being a potentially confounding point in a display with a specimen from the ‘past’ being prepared in the ‘now’ and yet being presented as a remarkably well-known creature. The effort to allay visitor confusion over when this dinosaur lived, the Cretaceous and *not* the Jurassic Period which had been signaled massively as the universal age of the dinosaurs in *Jurassic Park*,<sup>22</sup> was expressed in

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<sup>22</sup> This point on the collapsing of time in the film *Jurassic Park*, which mixed together dinosaurs known to have lived both in the Jurassic (e.g. *Brachiosaurus*, *Compsognathus*) and the Cretaceous (e.g. *Tyrannosaurus*, *Triceratops*, *Velociraptor*), caused no end of consternation for professional and amateur palaeontologists who



the first of two draft renderings of the time line. The beginning of the Jurassic was prominently crossed out in this layout. The final artwork would begin with the time of the Maiasaur, 80 million years ago, late in the Cretaceous Period. [Fig. 28, page following]<sup>23</sup>

But there was also a major omission of an element that had been part of the curatorial statement, on the matter of Maiasaurs as herding dinosaurs, and the possibility of such large-scale gregariousness arising as a co-evolutionary outcome of floral diversification at the end of the Cretaceous. Jennifer Ross drew a direct connection between these omissions and difficulties associated with the cost and technical demands of designing and producing multimedia components:

*Where are we showing these ideas? Text. [incredulously] That was it. [begins referring to document] "Lived in herds of several thousand" - but because we are doing it with digital animation which is really expensive and every action costs so much money - we could not show it. This idea that they lived in herds of several thousand was nowhere. It was only in text. Major weakness, I thought. "They migrated"—not depicted anywhere. "They built large nurseries"—there's something in the Tippett film, the little stop-motion animation, which we bought...60 seconds for \$5,000...a bargain. We edited it down to 60 seconds and paid for the rights to that 60 seconds. Five thousand dollars. Fabulous. It seemed expensive, but it was NOT expensive. You SEE the nests. "They cared for the babies"...that shows up in the film.... but it only shows one nest...again, like the animator is building these little things...he can't build a thousand of them all moving...*

*....Now this didn't affect in any way the popularity of the exhibit...But, as long as we're doing this exhibit, what are we trying to say? Apart from, "make it run, make it jump, listen to the noises"...What are we trying to say about this animal? The thing about the gigantic herds, would have been a really cool idea to get across...Just the thought of these tens of thousands of animals this size, ranging up and down what really was a pretty narrow strip of land here...and EATING...and they weren't the only Hadrosaurs either. There were many, many. A good dozen species of Hadrosaurs. We were unable to get that across and I was disappointed with that too...*

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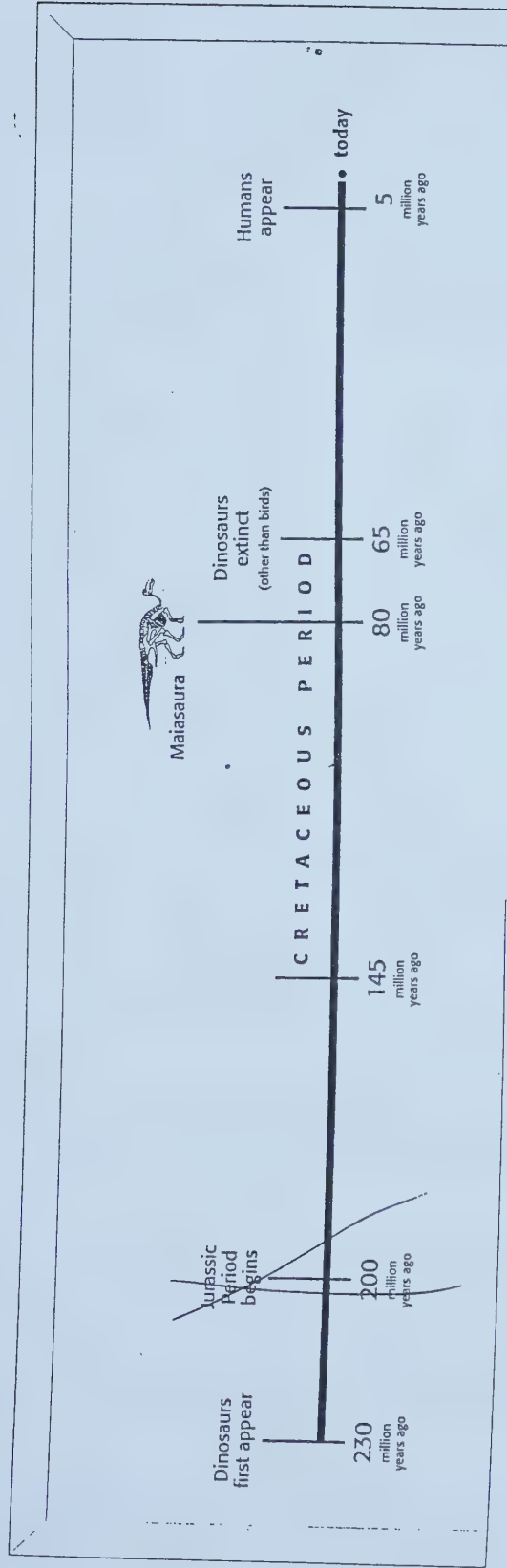
in internet chat groups, media interviews, film reviews—most notably one by Stephen Jay Gould (1993)—pointed out their annoyance with such anachronisms.

<sup>23</sup> Figure 28, Draft artwork for timeline, Source: ROM; Illustration used with permission of Royal Ontario Museum.

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**Figure 28 (p. 219a)**  
**Timeline Artwork for Maiasaur's Cretaceous World Moment (Compared with Human World Moment)**  
 Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.







I include Ross’s lengthy comment in order to highlight the concern about the undermining of the scientific intent as an effect of multimedia costs. Popularity was not sacrificed, but Henson’s interests in getting folks to “start thinking in a sophisticated fashion about dinosaurs as once-living, complex animals that did a variety of things”, about complex dimensions of biology, was getting increasingly diluted. More to the point, set against the visualization of the single Maiasaur nesting scene, there was a risk now of the scenario of dinosaurs as generic ‘family living’ creatures to become all the more foregrounded.

**“Meet a Maiasaur”** Certainly the most vaguely described component in the Interpretation Statement was on the “Meet a Maiasaur” space, which would feature interactive multimedia components of the most impressive sort. A later section of the Concept Design Summary did, however, provide more finished detailing of this section.<sup>24</sup> With the ‘time-travel’ action well accomplished, and with the tales of the world and lifestyle of the Maiasaur broadly contoured, this next section, “the most dramatic sequence in the exhibit” was intended to bring the visitor face to face with a Maiasaur, to illustrate “the *Maiasaura* as living breathing animals”. This was the “large-scale realistic computer animation” using a “20 foot video projected screen” and a “touch panel interactive videodisk” along with a selection of twelve 20-second animated “behaviours”. A direct quote from Curator Henson was included in the Interpretation Statement:

*“Get a sense of the movement and scale of the animal; avoid details that we have no way of knowing; skin texture is more reptilian than elephant-like, necks are generally poorly muscled...”*

Staying close to “knowable” details meant accepting the curator’s authority on what the creature would have looked like based, presumably, on his reading of secondary literature, not on primary research on the specimen itself. Henson continued:

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<sup>24</sup> I draw on both the Interpretation Statement and the Multi-Media/Audio-Visual Statements of the Concept Design Summary.



*“...for models, better off using large birds like ostrich; elephants are too straight-limbed... in moving there is a kind of slow swaying, especially in the tail”*

The technical and imaginative translations required to move from specimen to appropriate analog to “a kind of slow swaying” is not signaled. It appears for the most part to be arbitrary—to be taken as an article of faith. Again, loose statements like this appear to have been intended as a means of giving the reader of the document *a sense of the curator’s sense* of what it was that the animation could be allowed to dramatically evoke. A notably conservative tone was being struck, and yet it still required considerable imaginative intervention. In this instance the document was working to ensure that the authority of the scientist was not overtaken by unauthorized dramatization by the multimedia animators, as though their interpretations would undermine the curator’s proper inferences and so would need to be held in check. The artist, Manfred Tolman, who worked closely with the digital media producer Walter Tomasenko, and who produced the sculpted model on which the animations were based, told me that the curator did indeed hold him to highly static and conservative poses for the creature.<sup>25</sup>

These were further indications of a practical and conceptual divide developing between the curator and the digital media producer which I encountered repeatedly in interviews and discussions at the museum—a relatively minor contest which, nonetheless, was already showing indications of changing the outcome of what the “life and times” of *Maiasaura* would become in this exhibition. The locus for contestation, dividing, and trading of interests was *the imaginary*, something in which both the scientist and the digital media producer knew they had a very high stake.

A notable *inclusion* in the Interpretation Statement was a brief discussion of an “Alternate medium”, the use of 3D stereo vision for the projected animations. While this was not tried in the end, perhaps due to costs of production and the provision of 3D lenses or viewers for

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<sup>25</sup> Interview with Manfred Tolman, Aug., 1999.



visitors, the impetus for considering this medium tellingly notes the competitive sensibility of those involved in the project, vis-à-vis the entertainment industry. The Statement reads:

*“Payoff: no one else has done this yet so we will be ahead of a certain famous movie.”*

That “certain famous movie”, *Jurassic Park*—as much or more than ROM specimen #44770—was once more suggesting standards for the shaping of this public scientific exhibition.

Other indications of how this large screen space should operate suggested the advantage of a “stationary viewpoint: more like the effect of being able to hide somewhere and watch this large beast, like an explorer or a naturalist”. Such an approach, centering around ‘scopic vision’,<sup>26</sup> borrowed upon historically circulated travel and big-game hunting tropes as a guide for producing the visitor experience in this exhibit, echoing back to Doyle’s and Osborn’s productions of the Mesozoic/Lost World. Another suggestion, which cued in to the curator’s wish to give a sense of scale, was the painting of an outline silhouette of a full-size Maiasaur on the wall adjacent to the big screen (though ultimately, this was not actually produced). As with other components of the display, reading requirements were to be minimized. Visual cues to scale like these proposed silhouettes were favoured, “as opposed to stating it in metres”.

Furthermore, the Statement suggests that offering only a “small number of choices [of dinosaur animations] (4-6) would encourage visitor turnover.” The effect of “getting in” to an experience and then “getting out fairly quickly” would presumably be enhanced by such approaches. I later learned from one of the interpretive planning staff that there had been fears that the animation theatre would hold people up, creating a possible bottleneck. There was a great deal of anxiety expressed over this component—just as there would be with the following component, The Working Lab. Indeed, as I discuss in the next two chapters, the disparities in the descriptions between the Interpretation Statement drafted by the interpretive

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<sup>26</sup> cf. Jay 1988.





planners, and those in the Multimedia statement drafted by the Digital Media Producer, suggest the debate over how these exhibit components would work for visitors was a perennial matter.

**“The Working Lab”** While each of the first three exhibit sections took a page or less to be described in the Interpretation Statement, it took three full pages to describe the Working Lab. Measured by the work of transforming a laboratory into a display—that is to say, the amount of effort which the museum had to apply to making this component work as a display—the “Working Lab” could indeed be reckoned as the “centrepiece” of the exhibit (even though its location at one end of the space, rather than centrally, did not attend to this priority). Moreover the lab consisted of enormous numbers of technical elements including pneumatic tools, ventilation equipment, binocular microscopes, toxic chemicals, etc. The details on how to incorporate these elements required far more description than was usually needed in preparing an interpretive statement.



Having coursed through the Interpretation Statement arriving at the Working Lab, I will begin turning my discussion to move beyond the planning elements to an extended discussion of the lab as it actually operated. As I noted in the Introduction to this section (i.e. Chapter Seven), the lab was in operation only for the first two years after the exhibit opened, that is from May 1995 to May 1997. As such, I was unable to undertake any in-person ethnographic study of the Working Lab. However, I was able to assemble some remarkably informative interview material with technicians who worked in the lab, most notably Phil Thomm, the preparator who undertook the lion’s share of preparation work and public interpretation in the Working Lab. My purpose is to bring a fuller sense of the actual exhibitionary effect of the lab as a crucial component of the Maiasaur Project. The discussion that follows also leads more fully into the subsequent chapters, based largely on



my direct ethnographic experiences with the other two major sections of the exhibit, the *Cretaceous Period* components, and the *Meet a Maiasaur Theatre*.

Finally, the detailing of the lab that follows will also give greater relief to the complexity in the planning and translation work for this exhibition in relation to the translations of the fossil skeleton, ROM #44770, *Maiasaura*, “Henrietta”. I continue to pose the description against planning documents, notably the Interpretation Statement. In addition, and perhaps most importantly, this description gives a clear impression of the intricate, detailed action of *articulation* to which I have been referring over many of the chapters in this volume.

## (B) An Articulate Specimen: The Difference a Lab can Make

*Give me a laboratory and I will raise the world.*

— Bruno Latour, on the power of Pasteur’s laboratory science to recompose society <sup>27</sup>

According to the Interpretation Statement, the Working Lab itself would “offer an accurate picture of part of the process of palaeontology”. [see image of Working Lab, Fig. 29, page following]<sup>28</sup> The planners knew this was only a part of the process of scientific techniques, and that it was only a representation, “an accurate picture” of palaeontology in action. At the same time, it made the emphatic point that it was a “Real lab with real scientists!”. That the “real scientists” were actually real technicians—as opposed to the curator—was apparently not an issue. The effectiveness of this component was by no means considered a *fait accomplis* during the planning, as Jennifer Ross pointed out:

*...I actually had my doubts about the lab. I had seen a lab, I think at the Smithsonian or the Tyrrell...which was all yellow and horse-shoe shaped and so boring! You could sort*

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<sup>27</sup> Latour 1983.

<sup>28</sup> Figure 29, Working Lab photo by Brian Boyle, Source: ROM; Photo reproduced with permission of Royal Ontario Museum.



**Figure 29** (p. 224a)

**The Working Lab**

Source: Royal Ontario Museum, Photograph courtesy of the Royal Ontario Museum, © ROM.







*of look, but there was nothing to see. The work consisted of people going - scratch, scratch, scratch for years! This isn't very riveting.*

For the exhibit programmers, displaying a laboratory was a complex and confusing matter: how to *rivet* visitors to the action, how to get the laboratory to behave more like a representational display (i.e. an “accurate picture”), how to bring attention to the specimen, how to make the otherwise alien activity taking place inside intelligible. The apprehensions and uncertainty were well justified. As it turned out, the very act of placing a very real “behind the scenes” lab in a museum gallery automatically transformed it into a display, a picture, a piece of theatre. Technician Phil Thomm, [see image of Phil Thomm working over specimen, Fig. 30, page following]<sup>29</sup> who worked in the lab over most of its two-year operation, pointed out to me how it was the expectation of a theatre-like “set-up” which conditioned visitor responses:

*...some visitors would do a complete walk-by and they would think it was just a fake exhibit and that I wasn't real, just some mannequin...I think most people had the perception initially that it wasn't real ...because every other exhibit in the museum is a representation, it's not the real thing. You know there's stuffed animals, there's old English rooms that are kept as if somebody was about to walk in the room, but you can't go in them...everything's a set-up...so when they first come up to it, their mind is trained to think “this is just a set-up” and “that is a really realistic looking dummy “ and “boy, the museum went to a lot of trouble to make it look so real”...when you moved, you'd sometimes see and hear people screaming and jumping as if you'd given them quite a fright...after that, you could hear them laughing...they would actually be quite embarrassed...<sup>30</sup>*

The actual issue, then, should not have been “how to give an accurate picture”, but rather, “how to overcome the expectation of accurate pictures”. Instead of a highly-composed scenic reconstruction of a habitat diorama or an historical room, the visitor was presented with what would most likely be a puzzling array of technical apparatuses and

<sup>29</sup> Figure 30, Phil Thomm preparing ROM#44770, photo by Brian Boyle, Source: ROM; Illustration reproduced with permission of Royal Ontario Museum.

<sup>30</sup> Quoted statements from Phil Thomm in the following discussion relating to the Working Lab are drawn from an interview of March 31, 1998.



**Figure 30** (p. 225a)

**Technician Phil Thomm Preparing Skull of ROM #44770**

Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.







materials: work benches, microscopes, pneumatically driven tools, air hoses, suction ventilation, magnifiers, plastic phials, steel trays and shelves, paint brushes, bottles of chemical solutions, bones, scientific papers, power supplies, tubing and piping, huge white plaster-coated blocks of stone with bone-like shapes in them, photographs, protective gloves and goggles, mechanical pencils, graph paper, laboratory coats, and of course, the technicians themselves.<sup>31</sup> This museum diorama was, after all, a working laboratory. [Fig. 31, page following]<sup>32</sup>

Another major challenge—though, moreso for the curatorial staff and specifically the technicians who would work in the exhibit—was determining how to keep this transformation of work-space into display-space from impeding the work that needed to be undertaken inside. The senior vertebrate palaeontology technician, Paul Anderson, was also the principal technical consultant on the design and outfitting of the Working Lab. He expressed to me the issues which tended to be overlooked by the exhibit planners, and which had caused him considerable dismay at the time. Central for Anderson were concerns that a theatre-like lab did not meet protective labour and workplace standards, and that visitor safety could be jeopardized given the presence of toxic chemical preservatives, and of dust and shards from removal of the matrix in which the fossils were embedded. Anderson pointed out that it was crucial for the technicians to have a comfortable, productive, and more to the point, safe, working environment while being put literally “on display”.<sup>33</sup> The then Museum director, Dr. James McDonnell, was compelled to acknowledge these multiple

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<sup>31</sup> Note that this illustrates only the lab section. More complete schematics are presented in Chapters 10 and 11, which address the other two major sections of the exhibition.

<sup>32</sup> Figure 31, Working Lab photo by Brian Boyle, Source: ROM; Photo reproduced with permission of Royal Ontario Museum.

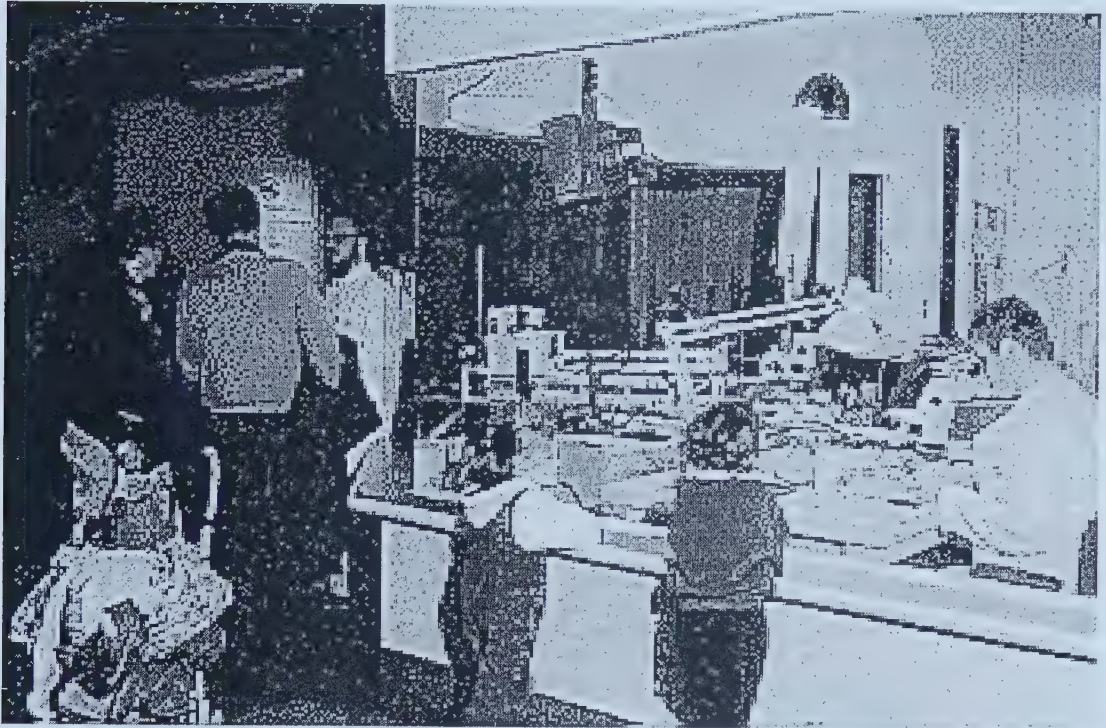
<sup>33</sup> Andreas Henson emphasized the technical complexities as well in his curatorial proposal (December 3, 1993): “The preparation area would have to be completely enclosed in plexiglas or a similar translucent material to prevent the spread of dust and chemical fumes while at the same time facilitating public viewing. It needs to be suitably ventilated to protect the technical personnel as required and specified by federal and provincial laws.”





**Figure 31** (p. 226a)  
**The Working Lab in Action**

Source: Royal Ontario Museum, Photograph courtesy of the Royal Ontario Museum, © ROM.





challenges—and so lent support to the efforts—in the exhibit approval memorandum sent to the managers charged with development of the Maiasaur Project:

*I appreciate the challenges faced by the team in attempting to present a working laboratory in a public space in a way that is interactive and that will capture the interest and wonder of the visitor, and I realize that there are aspects of the process of this particular project which added to that challenge.*<sup>34</sup>

Presenting, live-action technical work was not only something alien to ROM visitors. It was alien to the entire staff of the institution.<sup>35</sup>

The Interpretation Statement noted that “technicians/scientists” could be seen by visitors at work “at certain guaranteed times of the day, every day of the week.” They would be able to ask questions of the worker behind the plexiglas barrier by means of a telephone handset. This telephone interactive was not actually developed, as technical staff felt it would be too distracting from the work. In due course, the compromise between the seemingly incommensurable actions of conducting science *and* producing theatre in the form of a laboratory was finally arrived at: the technicians would come out of the lab at two posted times during the day to answer questions. The rest of the time, the technician would attend to the preparation-related work on the specimen. Work was planned to start with the Maiasaur skull, and proceed strategically through the remaining elements.<sup>36</sup> As it turned

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<sup>34</sup> ROM memorandum dated Nov.3, 1994, from ROM director to managers in charge of exhibit development.

<sup>35</sup> It should be noted that the ROM had, over the preceding two decades, held annual events during which technical and curatorial staff would bring artifacts, specimens, and technical matter into the museum galleries. The major event of this sort was “March Break at the ROM”, which took place during the Spring break in the school year. At that time, enormous numbers of school children would descend upon the museum with parents, guardians, friends, and relatives to participate in this fair-like event. Tables would be distributed throughout the museum for technical demonstrations, talks, participatory events and artifact handling opportunities. Performances, would also take place. This tremendously popular event would allow the visitors a rare opportunity to participate in and “catch a glimpse” of what takes place “behind the scenes” at the ROM.

<sup>36</sup> Though a professional mounted cast of the skeleton with the skull in place was placed in the gallery, the original Maiasaur skull itself from ROM#44770 was never actually put on display. In fact, it was still in the process of being prepared “behind the scenes” in the VP preparation lab in April of 1999 when my research visit came to its end.



out, the skull was the last element to be prepared—taking up the last seven months of the two-year preparation phase.

To bring visitor attention to the preparation work, without interrupting the technician, visitors would be able to watch the detailed preparation on a video screen which showed the view through the technician's microscope as the technician worked. Jennifer Ross recognized the potential this offered during a visit she made to the palaeobiology labs of the ROM during the planning stages. She found one technician at work preparing a specimen:

*I looked through this microscope and thought "Holy Geez, that's fantastic!...we HAVE to attach a TV camera to this". So we managed to link up that little TV monitor to the microscope. When he worked through the microscope, you could see it. It suddenly became really neat - it was such a clear picture, so vivid! You could see this little scratch, scratch, these little chips going, and suddenly the tedium of it became interesting.*

It was critical to produce pictures, especially pictures with action. With the right instrument of translation, "tedium" could become "interesting", so interesting in fact, that some visitors would find it difficult to pull themselves away from the lab, as Phil Thomm told me:

*...if they didn't think we were real, they would just walk by quickly...but once they saw we were real, the average stay, I would say would be 10 to 15 minutes ...if there was a microscope being used they'd stand there for half an hour or so... some would spend a couple hours looking at the lab and then go away into the other Maiasaur area, and come back again...*

The lab was proving to be the most effective theatre of all—all because it simultaneously was and was not theatre! Equally importantly, it was knitting together the action at the specimen with the action in the other display elements.

Among members of the Maiasaur Project design group, the lab was ultimately seen as highly successful, largely because it drew public attention to the central matter of museums: their collected objects, their specimens. Designer Sam Enright described it this way, "People come here to see objects...that's the principal reason for coming here, to see the real







McCoy...”. He also elaborated his position on the internal ‘battle’ over which section of the exhibition should be given primacy:

*I think people came principally to see the lab... that real-time thing is invaluable... There was a real political battle in advance of the design really happening... in both a grab for whatever percentage of the budget, to put into the multimedia, versus the lab... there was always this kind of rivalry... And in spatial terms they kind of take up the same amount of space... I was quite encouraged, that the lab—at least, based on my personal experience in wandering around the exhibit—won out in that. Because people seemed to like it much more...*

I was reminded yet again that much of this museum’s organizational “culture” turned on protecting the primacy of the collections’ objects in the communicative work of display. At the same time, this was consistently set against an anxiety that high-tech media spectacle was the source of greatest threat to that primacy.

The lab was complemented by other components (see schematic layout, [Diagram 2]).<sup>37</sup> These included a pre-recorded explanatory video describing the lab

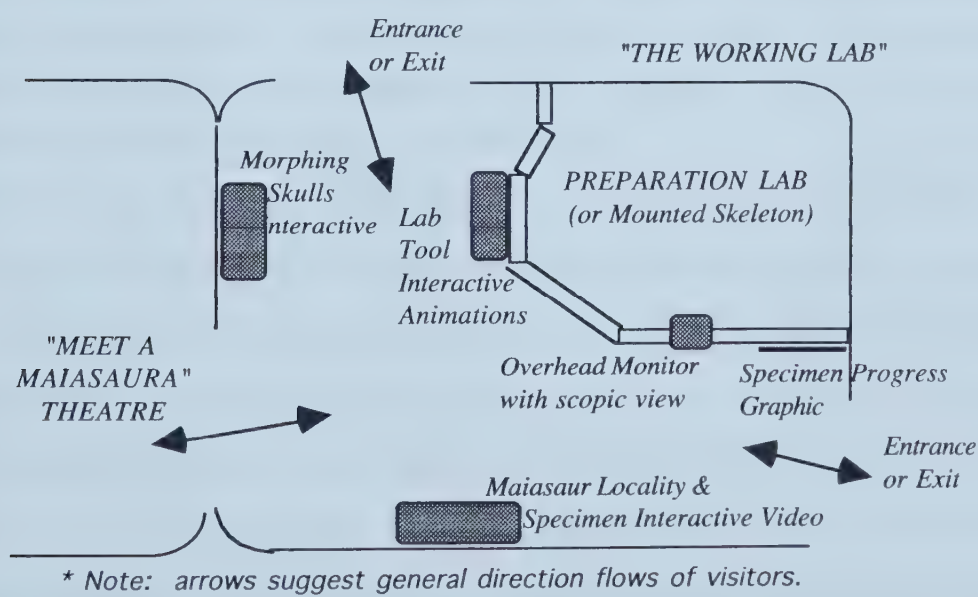


Diagram 2: *The Working Lab*— Schematic of the Presentation Space

<sup>37</sup> Note that this illustrates only the lab section. More complete schematics are presented in Chapters 10 and 11, which address the other two major sections of the exhibition.



equipment and process (which later produced in the form of an interactive computer-animation display); graphics with questions and answers on the topic of fossils; and a “Real piece of fossil” to touch and “to induce a sense of connection to lab activity”. This sort of action to ‘connect’ the visitor in many different ways with the entirety of the display as an experiential total was directly expressed in the Interpretation Statement:

*A cast of Maiasaur skin that can be touched. The emotive experience will be enhanced by the realistic animation of Maiasaura.*

On some occasions when emerging from the lab to meet visitors, the technician would even permit visitors to handle some of the more robust fossils he was preparing. Thomm explained:

*...That was a really amazing situation, when you can explain, “here’s what I’m doing in here, here’s the specimen, and it’s 80 million years old” you can see you’ve got their full attention...and then you put it in their hand...[pauses, as if to recreate the moment]...and then you just stop talking and let them think about what they have in their hand... And that’s the first time, probably they’ve been in the museum, that something that was behind glass protected from them, and then they’re allowed to interact with it. That’s basically what the whole Maiasaur Project was about...allowing them to share in the research and the specimen, in the whole thing...*

The other major components of this section were: a video describing the finding, collecting and study of this particular specimen; a “large progressive diagram” showing which parts of the skeleton were currently being worked on and which remained [Fig. 32, page following]<sup>38</sup>; and a “Skull Specialization” computer animation/interactive which would allow the visitor to “morph” the skull shapes of various ornithomimid dinosaurs on a computer screen, as if to suggest continuous evolutionary transformation. In one of our interviews, the curator admitted that this was a rather misleading presentation of evolutionary process,

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<sup>38</sup> Figure 32, “Progressive Diagram”, Source ROM website; Illustration reproduced with permission of Royal Ontario Museum.



**Figure 32 (p. 230a)**

**Specimen "Progressive Diagram"**

Shaded areas indicate parts of specimen already prepared

Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.







but that it suggested, in the abstract, the idea of transformation over time, “the very essence of evolution” in Henson’s words.

Phil Thomm noted how the “lab” display accompanied by “museum” displays impacted on visitor attention. It worked upon visitor expectations regarding what the actual “object” of the spectacle was—i.e. the specimen or Thomm himself, the preparator:

*... the lab situation [with] the video background and the computer explanation tools, and toys for—some of it was toys, like the unit that made the different skulls morph—like it was educational but they could also interact with it ....all those things really took the focus away from the people working in the lab, and focused it on the material being very important... I think that was an important move in the exhibit... The rarity of them seeing—normally it’s a stuffed lion or whatever is in there—so they would initially be focused on ‘it’s a live person’, but with the other material that’s there, they became focused on the specimen itself and the tools of the lab, and the processes of the lab, rather than the people of the lab... there was never any mention outside the lab of who was working in there, and what is their background, and where they come from ...which I think in hindsight was a good thing...*

Interestingly, once visitors saw that there was a human being working inside, doing something very serious and technical, it appeared that communicative effect was distributed to these other elements of the display, and in turn to the specimen. This helped to limit attention paid to Thomm, the person actually performing the work:

*...it helped in not feeling like you were so much on display, you just happened to be the one working on the specimen...you were just a player in the thing. Otherwise it may have made the situation working in the lab, that you’re the one that’s on exhibit, and you know, the dinosaur is secondary... So, those extra exhibits there to help people understand the specimen, turned out to be very important on the working atmosphere inside the lab. Without them there would have been too much focus on the live people working there...*

Of the other exhibit elements, the pre-recorded video on the specimen was noted to include location footage showing how the specimen was found, by whom (Sherri Flamand), and to create a “sense of excitement and luck”. In her continuing quest to find relevance for



the family audiences expected, Jennifer Ross explained to me how she felt this to be an extremely important story to include in the display:

*I jumped on it when I heard the skeleton had been discovered by a kid. She was 16 at the time. I said “that’s great, let’s make something of that!”*

Jennifer was hoping that visitors, especially young visitors, would identify with Sherri and her find, much as they might identify with the live technician working in real-time on the specimen. This would produce yet another possible set of linkages—what Jennifer called “relevance”—connecting visitors through a chain of associations to the specimen. The track of associations would then lead from the specimen into aspects of its morphology and biology. The Interpretation Statement also noted that the video was supposed to include explanations on what the research should produce in relation to the Maiasaur’s “beak and snout” and feeding behavior. A note in the Statement on the latter suggests how:

*This is important since it emphasizes something new about Maiasaur research; it also ties Maiasaura to its environment, and hints at an ongoing “mystery” in the relationship between dinosaurs and plants.*

In the outcome, however, this was yet another point that received very limited display support. Henson’s curatorial statement explained broadly the connections he intended. He wrote:

*“Particularly important...is the horny beak covering the front of the snout; this rarely fossilized structure will provide new insights into hadrosaurid foraging. As such, it is of great interest to an ongoing research program by Henson and his associates on the evolutionary acquisition of herbivory in different lineages of terrestrial vertebrates. Duckbilled dinosaurs, along with horned dinosaurs, have recently been implicated in scenarios to explain the tremendous evolutionary radiation of flowering plants (angiosperms) during the Cretaceous period. An understanding of their mode of feeding is obviously central to this debate. The assumptions of the aforementioned scenarios are that hadrosaurs were very efficient herbivores that required large amounts of rapidly growing vegetation and that early angiosperms, unlike other vascular plants, were weed-*



*like in their habits and could quickly recover from an onslaught by herds of these large plant-eaters.”*<sup>39</sup>

With a few small moves, and in a very limited locale, it was planned that the exhibit video would effectively carry the experience of the visitor in the gallery space, to the specimen in field and lab, and ultimately to the complexities of the living world of *Maiaasaura* millions of years in the past.

The point here is that great effort in the planning process was being placed on making connections and articulations. One set of connections was being built between this section of the exhibit and the ones previously described in the Statement. The second and even more notable set of connections were those attempting to link a unique characteristic of this specimen, ROM#44770, to a scientific problem, and ultimately to the larger palaeontological process of worldmaking. All of this would somehow aid in reinforcing the otherwise tenuous connection between the specimen of the display and the spectacle of the display. Strangely enough, the remedy was sought in multiplying the mediating actions and instruments between the complexity of the object itself and the even more complex animation display media. Equally strangely, it had relied on reducing the sense of audience complexity to the embracing notion of “families”.

Once installed and operating, the lab did activate a chain of mediated connections, though not always the expected ones. One brief mention of the beak and snout was made in the didactic video about the finding and significance of the specimen and, while the articulation of these fossil elements with other display elements may have been wished for, this single connection was rather weak. While the principal preparator was relieved that the other

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<sup>39</sup> Curatorial proposal, second version, March 4, 1994. Henson had also remarked on his particular interests in these topics in one interview: “I very much like the notion of co-evolution...which is a notion, that even though it has some antiquity within evolutionary biology, having been proposed in the early 1960s, ...it’s not something people really think about ...and I think it’s a very important concept to think about in terms of our current challenges, in terms of the dramatic environmental changes we are going through, that yes, animals relate to plants and that the evolution of plants influenced the evolution of animals and vice versa...”. Compare these comments with the article review and discussion article “Mesozoic and Early Cenozoic Terrestrial Ecosystems.” by Wing et al. 1992.





display elements minimized direct attention on him as the object of the display, it was abundantly clear that the connections intended by Henson would not have happened without the technician's active engagement with the instruments, the specimen, the curator, *and* the visitors. In short, the technician—that is, this one human—had been crucial in activating the entire 'chain' of connections. Phil Thomm summed it up in several commentaries. First, he pointed to how in responding to visitor questions, he could direct them beyond the more simple points they would raise about the specimen:

*...they were definitely interested in the specimen, "how old was it? where was it from? how did you know how old it was? what are you working on?" and "how do you do it?" ...it's like I'd almost get bored answering the question in a certain way... and, over a year say, I'd try to answer it differently by bringing in some other information so we could take the discussion somewhere else...*

Reciprocally, the interaction with the visitors had practical effects on Thomm as well, even redirecting his work on the specimen:

*...their questions were 90 to 95 percent of the time on the specimen, and I would point out within the block that I was working on, what was exposed and I would be very up front with them, what difficulty I had, what my next stage was...and I'd find it very helpful to be able to verbalize with people, who didn't really have any say in the decisions I was going to make, but in verbalizing them, allowed me to figure out the problems I was facing with the specimen...It was kind of neat,...it helped me to put the focus on what was needed to do, and what wasn't all that important...*

Apart from direct interaction with the technician, however, the articulation work was established by use of the computer-animated, interactive tool display. Several sorts of machines were demonstrated in this way: the "air scribe", the "pin-vise tool", the "filter system", the "dental tool", the "glove box", the "cast-cutter", the "sand table". Having selected from an array of lit-up buttons, a computer graphics animation of the particular tool would appear on a black-screen space. The tools floated across the monitor space, with texts indicating the name of the tool, "matrix", the "bone". The tools move on their own, as if levitating and operating without human aid. Only one of the animations, the "glove box",



included the motions of human-like animated hands. In this instance, two mannequin-like arms swing robotically into motion only once the glove box top lifts and a fossil floats into the work position, ready to be prepared. Thomm explained what would happen as visitors glanced back and forth from the digitally smooth, *disembodied* animations, and his own live and most definitely *embodied* activity in the lab:

*...they had the computer animated thing about a dentist's drill and an air scribe, and that allowed them to look in the lab, and go "oh there's the dentist's drill, and here's what they do with it",...Otherwise they'd have really no way to make any sense of it all...those exhibits helped to take things out of the lab context, and say "well this is what they do", and put them back in the lab context and then "there it is, and oh, he's reaching for it, and maybe that's what he's going to do with it and... oh, yeah, there he goes...that's right there"...I'd be hearing adults talking to the children, or adults talking among themselves...trying to figure it out, glancing into the room and if the dentist drill was right in front of them, they'd say "Oh, it's right there", and they'd hit it again and go "oh, look at that".*

Thomm had outlined quite simply and precisely how articulation takes place: the computer representation of the disembodied tool outside the lab, indexed the technician-held tool inside. Following the technician using the tool, either through the video image through the scope, or by watching through the plexiglas, led eventually to the specimen, and from the specimen to the diagrams, the videos about its find and significance, etc. This rhizome-like complex of juxtaposed representations, of *partial connections*, of tools, texts, and humans worked to bring the imaginary of the visitor into line with the palaeontological interpretation of the specimen. Henson's "dynamic process" of technical and reconstructive palaeontology could be suggested within the terms of this even more dynamic process of networked associations. In effect, the visitor would be interpolated into this network so that the scientific imaginary could be activated, and so that scientific imaginings could be circulated.

Here were cases of complex interactivity at work in the Working Lab as theatre-like display. But the articulations via the technician acting/working in the lab didn't simply create



connections between the visitors, other display elements, and the specimen. They also provided the occasion for exchanges with the curator and his activities in ways that might never have occurred otherwise:

*Andreas would bring down a couple hadrosaur papers... I forget the authors now... I think there was Cope<sup>40</sup>... anyway I would flip through those and that's when I first started looking at palaeontology science papers, and found them kind of intriguing... and I would take those things that I read and saw out into the talks with me...not the papers...but explain how many specimens had been found in Canada, sort of dabble into the science of it a bit... those papers were very instrumental ...Andreas's own interests, typically focused around the skull, which didn't really surprise me too much ...when it started to come out, he was down there more frequently, and I appreciated that, and he always answered questions I had... and if he hadn't been there for a week or two, he'd pop down and just see how things were going...if he had visitors in, he'd often bring them in, introduce them to me, and show them round the lab, and from that I started to get an idea of where he was wanting to go...and it was mostly around the skull...the dewlap was very interesting... the neck skin impression, sort of like a turkey...and the beak on the front of the Maiasaur, this is the first one found in situ, I believe, on any hadrosaur...*

As a consequence, the curator's interests were repeatedly brought into play via the technician, who would then be in a position to redistribute those through his interactions, both with the specimen in preparation, and with the visitors. So much could come into coordination: the specimen in the lab, the visitor in the gallery, the technician, the equipment, the history of *Maiasaura*, Henson's project to revise how people think about dinosaurs, the Late Cretaceous of northwestern Montana, the experience of a teenager finding a dinosaur—indeed the rationalization of this major research museum as an institution of civil participation. Thomm had summed it up already in talking about the moment of visitors being handed a fossil from the lab:

*That's basically what the whole Maiasaur Project was about...allowing them to share in the research and the specimen, in the whole thing...*

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<sup>40</sup> It was reported to me that the paper by E.D. Cope was provided as a guide for the sculptor who produced a reconstructed scale model of the *Maiasaur* for the exhibition.





## (C) The Decentering of a Specimen

Before appearing to celebrate the accomplishments of the Working Lab too much, it has to be emphasized that such potentially powerful connections between the nuance of scientific practice with visitor experience could only take place when the technician emerged to engage visitors' questions. Much of the effort to produce an articulate set of connections would be diverted in the process of exhibition production, budget management decisions, and emphases on the spectacle of multimedia. Now, even more, the significance of the omission in the computer animations of Maiasaur herds and hadrosaur diversity becomes clear, as does Jennifer Ross's dismay at this. Along with other desired features mentioned by designers and planners, such omissions significantly upset the chain of connections between, for instance, the unusual beak and snout of ROM #44770 and the scenario of thousand-strong herds of Maiasaurs, which the curator and Interpretive Planner had so carefully outlined in their official planning statements.

Perhaps above all, when the lab was removed, even the more general connections between the specimen and the surrounding displays would stand also to be lost. Once more, Phillip Thomm made the point unambiguously:

*The electronic exhibit stuff, provided an interesting background for the lab material ...it took it to another stage, to an educational and an entertainment stage, like with the computer graphics stuff ...now that the lab is gone, I wonder if the exhibit stagnates a bit...I can only speculate on this.. Whereas for two years the lab was a centrepiece of new stuff going on all the time...the lab environment was always changing... now people come back and they really can't see anything new...*



Beyond just losing the possibility of seeing something “new”, it appeared as well that the intricate complex of connections between the specimen and the media spectacle might also be eroded, if not erased entirely.

Before turning to the other display components of the Maiasaur Project, some final comments should be made in relation to the place of specimens in this exhibit. It has to be recalled that this exhibit was meant to be about and centered upon one single outstanding specimen—ROM #44770. As noted already, the rigorous study of the specimen had not actually taken place, only its preparation. Secondly, the specimen came to be located not in the centre, but, as it turned out at, the ‘end’ of the exhibit. The incompatibility of the two physical entities, “working laboratory” and “exhibition hall” conditioned this eventual spatial relegation, as I learned in another exchange with Jennifer Ross:

JR: *Because we had these solid masonry walls here, this became the best place to put the lab...hugging these walls. This is an original old brick wall from the museum built in the '30s, so it is really solid. The idea was that because it was predicted to be kind of heavy, that structurally it needed this.*

BN: *So you were physically constrained, in putting that centrepiece right there.*

JR: *Yes. It would be great if that was the first thing you hit, as it was central. However, just because of traffic flow, and because it is not available to everybody — people with strollers, disabled, and so on — they can't use this staircase that brings them up close to the lab. Then we had to designate this other end as the main entrance, instead of the lab...*

The ‘best laid plans’ of the curator, the interpretive planner, and the designer had been diverted further—now by physical structures of the building itself. Such architectural characteristics were rooted in museum histories which had not anticipated a technically-equipped laboratory—a “behind the scenes” facility—working as a display.<sup>41</sup> The term “centrepiece” had increasingly become an artifact of the commitments assigned to it during

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<sup>41</sup> Polly Winsor (1991:121ff) points out how public and systematic collections spaces were separated in nineteenth century museums of natural history. In line with this division, the active work of the curator and the curator's work bench would also be removed to ‘behind the scenes’ spaces hidden away from the areas of public exhibition.



the planning process. While unquestionably a major component, it was gradually losing both its physical and conceptual centrality, and with it the centrality of the specimen. Jennifer Ross—like the curator—made so many efforts to make the specimen paramount in this exhibition. This was after all, the *project* of the Maiasaur Project.

Despite Ross's efforts in preparing the Interpretation Statement which was so key to development of the exhibit, what is striking is how little presence this supposedly crucial actor—the fossil specimen—had in the document itself. The skeleton in preparation was undoubtedly the dominant specimen to be included in this display, supplemented with a handful of skulls and jaws from the ROM collection, a couple of small limb elements and plant fossils, and then a number of casts. The simple quantity of the official 'stuff' of museums—their collections— was remarkably small. The accounts of how the key specimen was found, what made it unique as a specimen of scientific interest, and how it would be prepared, would ultimately be relegated primarily to one video display. The overwhelming material content of this display would be the multimedia components and the technical and physical apparatus of the lab itself—as opposed to the specimen to which the techniques were applied.

To a great extent, the “leash-down” effect of Ross's concentric diagram had begun to unravel. What ultimately became the physical spatial centre of the Maiasaur Project was the “Meet a Maiasaur” interactive multimedia theatre. Over and over, recognizing the lab as central—let alone the specimen—was difficult for programmers. As 3D designer, Mark Alton's statement in the Concept Design Summary had noted, two of the exhibit's components—one being the lab—would display “context” and the third would display “current understanding”:

*The exhibit is divided into three sections: the primary introductory section (The Cretaceous Period) provides the environmental context for the Maiasaur; the secondary introductory section (The Working Lab) provides the modern context for the present study of the Maiasaur.... Between these two introductory sections is the interactive*





*theatre. This section showcases the most current understanding of the Maiasaur's behaviour and movement rendered in the most realistic manner allowed by present computer animation technology.*

Here again, the exhibit producers appeared to have conflicting senses of what was the “centrepiece” of the exhibit. For curator Henson it had been the lab. For Alton, the interactive theatre now had primacy, and the lab would provide context for that section, being relegated to the status here of “the secondary introductory section”. In the planning process, the allure of the contemporary technological spectacle continued to challenge both the action of scientific techniques, and as importantly, the specific agency of the specimen itself, the purported point of the entire project.

In laying out and commenting on the “official” documents behind the exhibit development, a number of notable contradictions came to be highlighted—especially on the question of what the actual centrepiece of the exhibit was: the specimen, the lab, the theatre, etc. The effect of those contradictions in the ‘finished’ exhibit has yet to be considered—but the ability, or inability, to find the means of articulating specimen to spectacle had clearly been identified as the critical matter for all.

Articulation and totality of imagining was central to this Statement as a work tool, but matters were visibly getting more complicated as the translation work proceeded, and as production of the multiple elements progressed. The curator’s proposed lab remained. However, unanticipated (or unseen) struggles over where to allocate the resources, over the difficulty of putting a working laboratory in the galleries, over the newness and caché of developing interactive high-tech multimedia displays, and over what should be included to produce the optimum chain of connections came into play. The centrality and the articulation power of the lab were being eroded. The newness of both the lab as theatre and of computer interactive media was pushing the work network into unforeseen terrain.



It also became clear that the continuity of connections between this specimen, ROM #44770, and the larger story of *Maiasaura* to be told, were limited. This is not to impute any error in the *attempt* made to represent the specimen as a reasonable index of the finished Mesozoic world put on display. *Rather, it is to suggest that the connections between them were complex enough, and the resources limited enough, that to animate those connections became impracticable.* The displays in the immediate area of the Working Lab space (videos, lab tools interactive, morphing skulls interactive), may have been quite well articulated through to the specimen. Now the divide that appeared to be developing was between the lab space and the two other main spaces of the exhibit: the “Meet a Maiasaur” theatre, and “The Cretaceous Period” displays. Recalling the table of translations (Table 1, this chapter), elements associated with the curatorial question of “how do we know?” were poorly articulated with the elements associated with the other two questions “what were they like?” and “where did they live?” With the removal of the Working Lab, the curator’s “how do we know” question, which literally centred his “sense of a dynamic process” would drop out of the exhibitionary apparatus entirely. The gap between specimen and spectacle—though narrowed some and suggestively filled in via the lab—returned once more in this new divide between the multimedia theatrics, and the lab theatrics.

Having presented the contingencies of these intersecting translations in the making of the Maiasaur Project exhibition, I am able now to take up Phil Thomm’s very practical question:

*...I think NOW would be the time to answer what role the lab played, now that it’s gone, what sort of state the exhibit is in... that’s something I can’t answer... I left when the lab was done ...I haven’t seen how people react to the whole exhibit today, whether they spend time there, or what they do...*

While continuing to consider the production contingencies and the actor networks I have begun to outline, the chapters which follow address the effects of the Maiasaur Project in its latter incarnation, that is, after the two year project of specimen preparation, and once it became an exhibit devoid of its official “centrepiece”.



## “A Perfect Time for Raising a Family”

### The Life, Times, and Kinship of “The Cretaceous Period”

#### *Maiasaura: The Nexus Emerges out of the Network*

This chapter and the next shift somewhat in focus and tone. As such, they deserve some additional introduction. This also affords me an opportunity to summarize aspects of the discussion presented so far, and to retrieve some of the terms I introduced in the first part of the dissertation—the terms of Mesozoic performativity.

Late in the previous chapter, I offered several interview commentaries which contoured dimensions of how the “Working Lab”—one of the three major spatial components of the Maiasaur Project exhibition—operated as finished, materialized display. In effect, it showed the linking together of the curator’s fantasies with those of other key museum staff and of the audience. What follows in this chapter and the following one are accounts of the physical materialization of the remaining two thirds of the exhibition. These accounts are based significantly on my participatory observation in addition to interviews and other documentary sources. The two components remaining to be discussed are, respectively: the combined “Introduction to Exhibit” and “Cretaceous Period” displays, and the “Meet a Maiasaur” interactive theatre. The accounts in both chapters offer a critical tracing of the exhibition, unpacking of its logics, persuasions, interests, and with that its politics, while discussing the connections that are made, upset, or suppressed as a consequence. The





accounts extend the dialogues from the making of the exhibit into the exhibit itself, bringing the action of its developers and visitors into play.

The sub-title I use above, “the nexus emerges out of the network” gestures to the shift in focus which began at the end of the last chapter with a consideration of the lab in operation. That shift was from the networks acting upon the *conceiving* and promoting of the exhibition, to the *materialized* outcome of the exhibition. Implicated in the conceptualizations and translations throughout the network of actions were specific phantasies of how to constitute the Maiasaur’s world—a revised performative nexus of the Mesozoic. These complexly mixed actions of fossils and their acquisition, imagining, writing, visualizing, budgeting, recitation, and translation lead in due course to the exhibition itself.

In terms of my larger thesis then, the previous discussions dealt with the translations and circulations of *the nexus through the network*. In contrast, the following discussions deal with the materialized outcome, *the performative nexus precipitating out of the network*. Along with a reconstituted Mesozoic world, particular forms and relations of life emerge in the exhibitionary outcome. Moreover, as was the case with the Doyle/Osborn nexus, the forms and relations in that outcome have political dimensions. In turn, these politics should be discernible in the very physical make up and enacting of the exhibition. In these two chapters, then, I consider the politics which were performed through the Maiasaur Project into its exhibition and, as a consequence, into its associated “natures” and “natural orders”. It is here that the politics of gender and kin relations, among others, become all the more distinct.

As noted, during the period when I was at the museum, and conducting interviews, the Working Lab had been removed from the exhibit. My discussion now turns generally on a number of questions following from the consideration of the lab in the preceding chapter. If the lab display connected visitors to the specimen, what sort of connections were made by



the remainder of the exhibition? If the curator's actual wishes to convey the dynamic processes of palaeontological reconstruction and of revised interpretations of dinosaur life were most activated through the working laboratory, what (and whose) interests were activated in the other two major components? If a widening divide was being created between the technical work of the lab with its specimen, and the multimedia work of the theatre's Maiasaur world, to what extent would visitors obtain Henson's "sense of a dynamic process" and "start thinking in a sophisticated fashion about dinosaurs as once-living, complex animals"? What was the predominant material/phantasmatic world of past life that came through the exhibition, and how did visitors engage with that world? In short, what was the political *relevance* of the exhibition?

Different politics are cued in each of these two chapters. I will say more of the latter chapter once there. In this chapter, however, and as noted in my title, some dominant emerging politics relate to the naturalistic ordering of family life—both human and saurian. The components of the exhibit which I describe in this chapter were developed along the lines of more traditional canons of museum practices: presenting comparative collections and fashioning a didactic narrative to enhance their intelligibility. The discussion in this chapter moves through three parts: 1—*In the Virtual Space of the Maiasaur Project* which gives a perspective on being inside the exhibition as a whole; followed by two sections which develop around a participatory "walk-through" the exhibit spaces, 2—*Entry Model and Fossil Showcases: A Strangely Familiar Order* and 3—*Into the Time-Space of a Maiasaur Neighbourhood*. I continue this descriptive walk-through in the next chapter as well.

I begin the descriptions, quite literally, in the middle of things. This opening scenario took place in May of 1998, just under a year after the removal of the laboratory from the exhibit space. At this stage, in place of the lab now stood the mounted skeleton of the specimen, frozen on the spot, in a standing pose—the upright posture, ready to move,



signaling that this was not just a well-dead creature before me, but rather something already on its way to being virtually reanimated, virtually brought to life.

## 1—In the Virtual Space of the Maiasaur Project

This opening discussion is a narrative, with critical commentary, describing one of my earlier ‘walk-throughs’ of the exhibit. Although primarily based on one walk-through, I have added in fragments from several other visits, and from visitor ‘follows’, to give the reader a more full sense of the diversity of visitor experiences. The intention is to produce a vignette of my earliest impressions, along with developing critical commentaries.



Having positioned myself in the gallery between the “Cretaceous Period” and “Meet a Maiasaur” spaces of the Maiasaur gallery, I immediately became aware of the overall soundscape of the space. To my left was the very loud ‘Visit to the Cretaceous’ interactive module/console with its overhead video monitor. Visitors could touch one of the buttons to start videos on one of two topics. One selection was for “A Cretaceous Neighbourhood” presenting an overview of the Cretaceous times *Maiasaura* lived as a time of flourishing plant life. The second selection was for “A Maiasaur Family” presenting *Maiasaura* nesting and parental care. At this moment, I recall that someone had chosen the former of these two selections.

To my right was the much touted computer graphics animation theatre—the “Meet a Maiasaur Theatre” as it was called during the development phases—with its big screen, across which a variety of life-like animated dinosaurs were seen to be walking and moving, the deep drum-beat of their foot fall resounding with each step—the same sort of visceral pounding which Spielberg had used to signal the footfall of an approaching *Tyrannosaurus*





in both his *Jurassic Park* films. Children clustered around the console vying to be the first to hit a button after each projected sequence was completed.

Both interactive modules were currently activated in the space, but the volume on the Cretaceous Period display was higher. At one moment, rising distinctly above the surrounding sounds, the resonating yet soft-toned woman's voice spoke out:

*It was a time when food was everywhere...it was a perfect time for raising a family.* A time of no scarcity, I thought to myself. Here, in the fossil record, was an economic prescription for raising a family—a kind of naturalistic moral about abundance and fecundity. I wondered whether and how this prescription played for the visitors. Some were rushing through as if to simply catch a glimpse of the displays, as if to make sure they would at least be able to say 'I saw it all'. Others were lingering, gazing, scanning, reading, touching, more or less quietly and gently. Still others—mostly children—were pounding, bounding, screaming their way through the space, very much bodily engaged with the surroundings. How and whether they could background or foreground the competing sounds, which easily mingled and bled into each other was not clear to me. In a few moments, the video with its declaration played again—someone having pressed the console button for this segment once more, the words lifting loud and clear, "it was a perfect time for raising a family". There was no escaping this point.

I also wondered how much of a story, or what sort of a story these visitors were drawing from their experience in this space. There were a number of approaches to this hall on the second floor of the building, so no unitary plan of experience could be predicted. People could have made their way into this gallery having just come from any of: a) the contemporary reptiles section; b) insect gallery; c) a Chinese art and culture section; d) the washrooms just around the corner; e) the general dinosaur and vertebrate palaeontology exhibits; f) the ecology exhibits; g) the ancient civilization and western history galleries upstairs; or h) the main Currelly orientation hall downstairs, named after the ROM's first



director, Charles Trick Currelly.<sup>1</sup> The hall did little more than orient the visitor to the various floors of the museum by means of some general floorplans and some showcases and videos sampling the sorts of objects on the various floors of the museum. It was difficult to imagine the idea of consistent, coherent narratives of natural history, or evolution, or life, or of the relationship of humans to the natural world operating here—unless of course, visitors brought or imposed their own order upon this array of natural/cultural topics available within the public galleries of the ROM.

It was the video's "family" point that continued to resonate around me. Here were people moving through in small clusters that appeared to be what were said to be the target audience for the exhibitions: "families". As noted previously, the understanding of that audience, from what I was able to track was very general. Exhibit designer, Sam Enright noted the vagaries in aligning with this audience during the Maiasaur Project development:

*... how the content is written, how we design is supposed to tie closely to the audience definitions... it may well be the very first or second question after budget questions are asked, "who is the audience?" ... but that is often the most vague sort of criteria... the current director has a strong intention of having this as a "family place" ... that audience may have been better defined had he been here then... historically it's not been at all clear... there's a lot of educated guess work...*

However, in the modal North American sense spoken of by several people in the process, and stated quite clearly by the marketing coordinator of the exhibition, Brenda Mikelsen "a family is an adult and a child". I took this to mean some combination of a small number of adults and a small number of children visiting the museum together, but with the notion of "familial" relationship often read back into such clusters. The crucial point was the dyad—a child accompanied by an adult—but that notion still demanded Enright's "educated guesswork", leaving enormous room for imagining what it meant to be a "family" visiting a

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<sup>1</sup> For a rather laudatory account of the ROM's history, see Dickson 1986.



museum exhibition. The exhibit, then, would provide some cues to the assumptions made about what constitutes a “family”.<sup>2</sup>

The “time for raising a family” phrase started making more sense. This exhibition for families very explicitly played up the familial thematic—the particular one of mother and babies at the nest (with no mention of a father). Again, this had been aligned with the well-circulated scientific interpretations of this kind of dinosaur, most notably those proposed by dinosaur researcher, Jack Horner. Recalling Jennifer Ross’s circle diagram with “Henrietta’s immediate family”, her “neighbours”, “relatives”—this phantasy of “family” and the “familial” was clearly a key point of articulation being worked upon in the exhibition. It was the shareable, phantasmatic point of translation used to connect the knowledge-experience of scientific practitioners with the knowledge-experience of visitors.

In the interest of grasping whatever narrative coherence and visitor relevance (i.e. articulation) the exhibition might provide, I returned on a later day to continue the close reviewing of the exhibition, now following the visitor track intended by the exhibition developers.<sup>3</sup> The gallery had recently gone through some spatial revisions in the last month, introducing yet another disruption to any intended communicative strategy. I entered it from what I knew the planners had intended to be the primary entrance, the beginning of the idealized one-way walk-through. Where the exhibit had been designed and opened with four distinct entry-points, the exhibit layout had now been made into a *cul de sac* and the ‘intended’ entrance was the only way in and out. Moving through brought me to a point requiring me to return back through the space the way I had walked in. Strangely enough, now that there was only one way into the exhibit, the designers’ flow design was actually training visitors to move through the exhibit in the preconceived manner, whereas

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<sup>2</sup> “Family” is a remarkably contested signifying category in anthropological discourse. Rather, its meaning is immanent in the worldly examples which give it shape, such as the use of “family” as a target audience at the ROM, or the Maiasaur “family” of the exhibit video. For a discussion of the category of “family” in anthropological discourse, see Collier, Rosaldo, and Yanagisako (1992:3-48).

<sup>3</sup> Comments refer to a critical walk-through that took place in early June of 1998.





the multi-entry potential of the original layout meant that the experience could permit the story flow — such as it was — to operate in reversible ways, and indeed following several permutations depending upon visitor choice or downright accidents of distraction. Indeed, many visitors did move through this exhibit in what appeared to be a highly distracted manner — looking randomly at this or that element, suddenly turning around to go back to look at something else, glancing for a moment at some component, or even just marching through with a few sideways looks.

The other passage ways into the space had been blocked when the summer's much anticipated temporary exhibition, "A Grand Design", from London's Victoria and Albert Museum had arrived during the previous month. A shop with merchandise specialized for that show had been installed in the space which I had noted as being occupied by the mounted *Maiasaur* skeleton, which the year before had, likewise, replaced the preparation laboratory. Most visitors would not realize the transformations, but I was very aware of how: a) completion of the skeletal reconstruction had taken primacy over, b) displaying the technical process in the lab, and now, c) the merchandise potential of an unrelated exhibit took primacy over the communicative effect of both of these. This surprised me somewhat, given that the investment in labour, creative planning, story development, communication objectives, and concern for visitor learning competencies had been quite substantial. How could such experience-altering revisions to the workings of the exhibit be made so readily?

This willingness to stray from design rigour and discipline belied something other than a relaxed attitude toward the planning and communication processes. It also suggested to me the difficulties of managing to meet the needs of operating a complex organization with plenty of internal differences on exhibitionary practices. I recalled how the Manager of Exhibit Programming, Wendy Madsen, had informed me of some key issues faced daily in managing an institution with a cumbersome infrastructure:

*...you have to remember...while the ROM currently has six curatorial departments, those six resulted from the amalgamation of nineteen curatorial departments two years*



*ago... And within each of those nineteen departments there were a whole lot of different collections and different interests... So you have a huge number of competing interests... for limited space, limited resources, attention, etcetera, etcetera... And part of what I have to do in the exhibits programme is try and have some semblance of balance, and try and do things which some days you're more successful at than other days...*

Contingency and complexity in interests, collections, and agendas had to be “balanced” against scarcity of resources—the ‘reality’ of running any and all components of the ROM. As well, the V&A exhibit was expected to be the big summer audience draw. Additional admission was being charged for the V&A show, which had to recover costs, and in general it was hoped the exhibit would pull increased numbers of visitors into the museum. The coherence of one exhibit and the nature story it embraced could be put aside with these sorts of managerial complexities and financial imperatives.

The contrast between the layout of the first two years with the laboratory in place and the exhibit without the lab is particularly striking.

To help give a stronger sense of exhibitionary spaces, I have prepared my own translation devices in the form of several schematic floor plans. Following are two generalized plans of the exhibit spaces as they were laid out over two different spans of time, indicating the various display elements they contained and which I have already discussed or will discuss in due course.



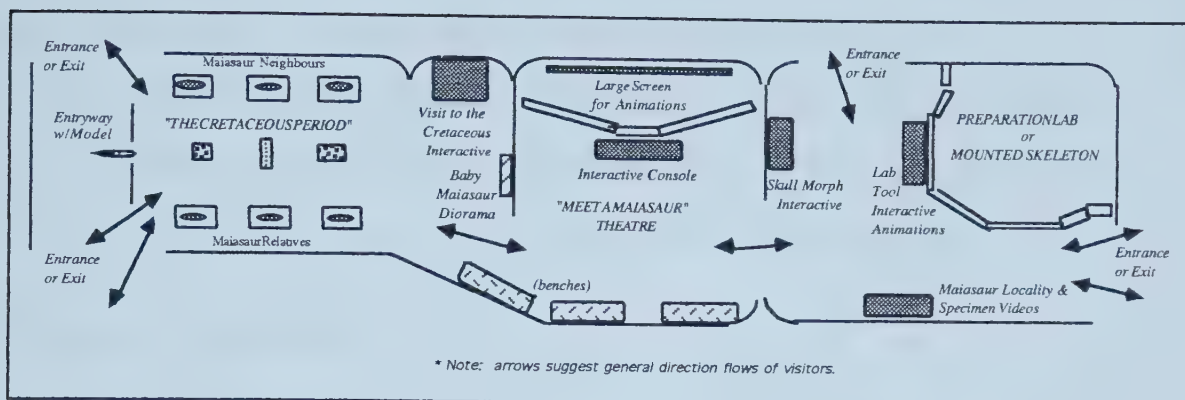


Diagram 3: Original Layout of Exhibition (May 1995-May 1998)<sup>4</sup>

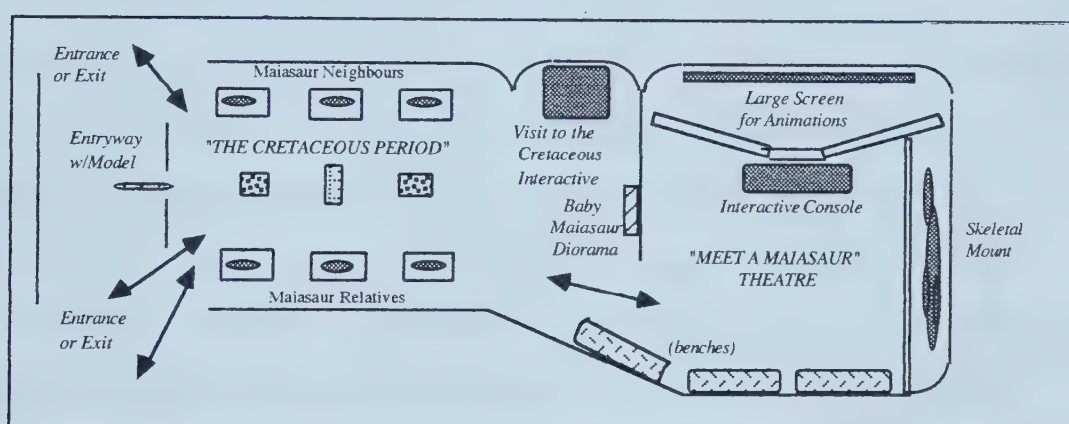


Diagram 4: Modified Layout of Exhibition (May-Sept., 1998)  
(i.e. this is the layout discussed in this and the following chapter)

## 2—Entry Model and Fossil Showcases: A Strangely Familiar Order

The spaces of the gallery had been recently re-organized in what might seem a familiar exhibit hall pattern: an entry area with a marquis or title banner, followed by glass cases, culminating in a space for the reconstruction of the featured dinosaur skeleton. In this case,

<sup>4</sup> I drew this schematic plan prior to looking at the designer's plans and drawings. It is based on the exhibit's layout as I had understood it over several visits. A few modifications in titling of display elements have been made to correlate this plan to the "official" exhibit floorplan presented in the preceding chapter.





these “traditional text- and object-based”<sup>5</sup> exhibit components were followed and “complemented” by the technologically sophisticated interactive computer graphics of the “Meet a Maiasaur Theatre”. In the original layout, the theatre would have been followed by the lab/mounted specimen space, but, as mentioned, that had been removed.

### A Fetish of the Familial

The signed entry area displayed two large chrome-like mesh panels with the name of the exhibit, *The Maiasaura Project: The Life and Times of a Dinosaur*, cueing to the sort of chronotopic vision that was to be presented. The suggestion is that we will enter the biographical, everyday world of the Maiasaur. The first display object to be encountered upon entering the exhibit was an ultra-modern, shining metallic scale model of the reconstructed *Maiasaura* dinosaur. It was a futuristic figure of exquisite detail and preciousness. The figure stood in a fairly static, standing position, the sort of pose characteristic of a silhouette in encyclopaedic dinosaur identification books—to which many children growing up in the comfort of Euro-American education and commodified entertainment milieus are often exposed. The four-footed stance of this duck-billed dinosaur was somewhat unusual for this sort of dinosaur which had for most of the history of palaeontological representation been represented standing on two legs. This revised position placed the creature in a more horizontal stance, somewhat reminiscent of contemporary stances rendered for *Tyrannosaurus*, according to many of the museum visitors with whom I spoke.

The metre-long model was mounted on a wooden pedestal, its head positioned about four feet from the ground (about eye-level for most 10-year old children). It was three dimensional, free-standing, accessible for viewing from front and sides, something to be admired for its craftsmanship, and not being enclosed in a display case, free to be touched

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<sup>5</sup> Terms from Barry 1998.



for its pewter, sterling-like finish. It is as if this precious object, in its totality was drawn from the earth, polished to brilliance, and placed on display.

This was a finely crafted model, with exceptional detailing in the skull, the folds of the skin around the neck, and the back bone with its row of tiny bumps. Even the subtlety of its pose—the creature stopped in the midst of walking, its left front leg slightly raised was striking. At the time, I did not understand the significance of these details. Some of these features were cues which I understood much later to correspond with Andreas Henson’s inferences about the anatomy of this kind of dinosaur. Most notably, the interesting dewlap folds had been recognized from skin impressions associated with the ROM *Maiasaur* specimen, while the stance appeared to follow interpretations from his previous comparative studies of ornithopod dinosaurs, and of studies by Osborn’s mentor, Edward Drinker Cope.<sup>6</sup> At the same time, however, there were no explicit display references here to signal the connection to the interpretive work undertaken by the curator. While possibly compelling features, these articulations to the technical were not made. Visitors could not know the process which culminated in the detailing of this model.

On another visit to the gallery during the museum’s “March Break” activities (when adult-accompanied children arrive in huge numbers during their annual Spring week off from school studies), I sat on a bench across from the pewter *Maiasaur*. Child after child—from three years of age and older—often tugging on the hand of the parent or adult companion, would reach out to touch, pet, caress, or otherwise sense the contours of the lamb-sized replica. [see Fig. 33, page following]<sup>7</sup> The possibility of tactile contact with something precious, here a fetishistic reconstruction, was immediately offered and, in the case of most children and indeed many adults, was consistently taken up.

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<sup>6</sup> Both Phil Thomm and the sculptor, Manfred Tolman, told me that Henson had encouraged them to review Cope’s article. Curiously, the unusual beak associated with the ROM specimen was not depicted. According to the sculptor, he had been instructed by curator Henson not to portray this feature in the model (personal communication with artist).

<sup>7</sup> Figure 33, Photograph of children interacting with *Maiasaur* model, by Brian Noble, Setting photographed with permission of the Royal Ontario Museum.



**Figure 33** (p. 253a)  
**Pewter Maiasaur Model & Children Interacting**

Source: Photograph by Brian Noble, © Brian Noble.







What took place here is worth recounting in some detail, and I draw directly from my field notes:

I had returned on this final day of the March Break week of activities to get a few more photographs. Now of course this was a time when the galleries would be jammed. Kids were out of school, and public institutions like the ROM had their special activities in place for school kids and whatever guardians they might have with them. Consequently, there were huge numbers of adult-child groupings.

After snapping a few shots of the various interactions with the display, I sat down on the bench directly in front of the pewter Maiasaur. A steady stream of people came by. As children would approach, they would do a double take, or march straight up, hands stretching out to touch the chrome-like model. The accompanying adult—mother, father, grandparent, or some other guardian or friend—would turn and follow the lead. The child would invariably look over her/his shoulder up to the adult with a look of satisfaction or even awe. The adult might then read the text, as one did, remarking: “oh, this is called the Maiasaur...that means Good Mother Lizard...that means that this kind of dinosaur took care of its babies. It was a good mother, just like people....did you know that?”

The child would look at the creature again, as if the message was slowly sinking in. But on the other hand the creature was not like a big dinosaur. It was actually child-sized, about the size of a terrier dog or a lamb perhaps. The hands would reach most often for the snout of the animal, or run along the ridged spine (I remembered that many kids would tell me what they learned from this exhibit was that the creature had spikes along its back, which of course is not typically the way duck-bills would be described in descriptive popular books, nor in the majority of technical descriptions). The next most touched bit was the foot, but that often corresponded with smaller children who could reach the toes most readily.

I watched for about 15 minutes. I must have seen a couple hundred people walking by, in parties of two to five at a time. And certainly every second party had someone who had to reach out and touch the model. Adults generally didn't reach out, except in one or two instances where the child with them had reached first. Again, the adult took on the interpreter-teacher role, either reading and interpreting “Look, it's the good mother lizard” (very typically), or asking the child, “Did you see this dinosaur before? Do you recognize it?” or the like.

As to what was going on in the difference between adult and child relations, a few things were pretty clear. Children were into experiencing and sensing the exhibit. They were delighted to find something that was not behind glass or cordoned off. Not only that, here was something their size, at their eye-level. Most adults—excepting those in wheel chairs, for example—would look above this, but the child's interaction would bring their gaze down. The text then gave the parent the means to articulate with the child. But almost every child would dart out a hand, even if they were running by—a quick head turn, a flash of recognition, the quick brush of a hand against the nose, the possible one-second halt, gaze and touch. To touch this dinosaur was almost a reflex for most children. It was testimony to what happens when museums ease their restrictions against the touch. The metal shone in the spots of most repeated contact—toes, nose, the ridge of the back—leaving traces of the history of interaction.



The power of the model was somewhat astounding because I knew that, to some extent, it was something of a default element which survived the ravages of budgetary struggles.

Jennifer Ross explained:

*...This was something you could at least touch, although I noticed a lot of people say "No, no, don't touch it" But it was meant to be touched. It is about being at a museum, right? I think eventually we put up a little sign saying it is okay to touch it. Because you did not get to see it, I needed something showing the scale. The graphic designer had planned to have a full-scale projection on the mesh in the background, so you could get a sense of how big it was. He had tons of ideas - like, you could climb through and look through its eyes and see what it was like for a Maiasaur. There were pages of inventive ideas. We didn't have the money or it just didn't get done. So, instead, we just ended up with this little tiny model.<sup>8</sup>*

The Graphic or "2D Designer" for the exhibition, Sam Enright had conceived of the pewter Maiasaur, noting how it was, "to be viewed from all angles, and mounted on a low pedestal so that it is accessible to visitors who wish to 'pet' it." He continued:

*...I was inspired principally by a display in New York on the Statue of Liberty... They had portions of the statue recreated full scale and they were all hands-on touchable things that kids really like... And I thought that was an opportunity to get kids to engage with this thing... that they might even approach the thing as a "pet"... And hold them there, because we were expecting to present a certain amount of didactic material there, that might not be engaging in itself to kids, but if the kids were somewhat entertained, the parents would help... in showing things like scale...<sup>9</sup>*

I recalled Andreas Henson's remark about presenting *Maiasaura* as an animal children might view as a pet, like "Dino" on "the Flintstones". But the precious metallic quality of the thing brought in other valences. The modern, sleek-lined feel of the exhibition extended well beyond the little pewter Maiasaur into the organically-shaped, almost butterfly-like, but otherwise nondescript wire mesh forms hanging from the ceiling, giving a sense of new design elements against the older containing architectural structure of the building. Sam Enright had also told me that the ultra-modernist character had been conceived by the 3D

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<sup>8</sup> Interview with J.Ross, March 30, 1998.

<sup>9</sup> Interview with S.Enright, July 9, 1998.



designer Mark Alton, whose proposals reflected this point in the “Concept Design Summary”:

*The aesthetic pursued will be one of modernity, clarity, and elemental simplicity... The materials specified will stress a constructed or component nature, sympathetic to the exhibit character which assembles facts and information to construct the best ideological and experiential model of the Maiasaur. The materials will provide a contemporary context that stresses the currency and continuing nature of the research being done on the specimen...The refinement of the architectural detail should stand in contrast to and further amplify the experience of the organic nature of the specimen.<sup>10</sup>*

Here, was a precise case of producing the sense that things human and technological were utterly different from the fossil, as non-human, organic, natural, unmodified. Later, seemingly contrary to this advice, the Multimedia producer would instead attempt to draw everything into a seamless total, “a living breathing environment”, of which the visitor would be part. Nonetheless, the very abstract formal features built into the space, had been meant to cue the visitor to the contemporary, aligning modern clarity with the ongoing, virtual assembly of “facts and information” in the construction of “the best ideological and experiential model” research could offer. Gleaming shininess, technologically-sleek elemental forms signified the cutting edge re-creation work taking place here. This sensation was translated into the soundscape of the exhibit when few or no people were there. When “at rest” the exhibit plays an ethereal, fluid sound, the sound of unfolding, an ascending chord, then a glissando and gentle cymbal crash, rising then falling. It is gentle, almost akin to breathing, the rise and fall of waves—like New Age ‘nature’ and ‘relaxation’ recordings—but here it was naturalistic, organic sound-motion produced by digital, electronic means.

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<sup>10</sup> From “Concept Design Summary” document.







## The Performativity of “Good Mothering”

The paired chromium screens flanking the metal Maiasaur showed the title, once in English (left), once in French (right), subtly privileging English readers in this left to right reading/writing convention. With this titling, visitors are cued from the outset that this will be a bilingual exhibit:<sup>11</sup>

the Maiasaur project    the life and times of a dinosaur  
le project Maiasaura    vie et moeurs d'un dinosaure<sup>12</sup>

Though gender was not grammatically inscribed in the word “Maiasaur”, it was semantically in its translation: “the good mother lizard”. This was explicitly noted in texts on the pedestal base for the pewter Maiasaur. However, in its Linnaean generic form, *Maiasaura*, the ‘-a’ suffix signals feminine gender, while the more familiar ‘-us’ (as in *Tyrannosaurus*), signals the masculine.

Just as the pewter-Maiasaur acted as a polysemic three-dimensional key to the exhibition—preparing visitors simultaneously for a tactile experience, an approachable familiar creature, as well as something rare—so the accompanying exhibit text printed horizontally on the mounting table base provided additional indexing keys to the particularities of this dinosaur presentation as focusing on one, individual Maiasaur [typographic emphasis approximates original]:

**Maiasaurs** (my-ah-sores) were large **plant-eating dinosaurs**  
that lived about **80 million** years ago. By comparison, humans evolved  
less than 5 million years ago.

**We** are showing a model of a **single Maiasaur** here, but  
maiasaurs were **rarely alone**: they lived in enormous **herds**  
of up to 10,000 animals.

**Maiasaurs** are noted for the **care** they gave to their young.

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<sup>11</sup> I was told by several staff that provincial statute requires the ROM to present its materials in both official languages of Canada.

<sup>12</sup> The French and English glosses do not match precisely, but already, there are small but significant indexes to the scope of meaning which this exhibition entailed. *Maiasaur* becomes *Maiasaura* in French, matching the Linnaean scientific term for the genus. French linguistic rules designate the recognition of the gender of this noun—this being a feminine form.

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Their scientific name means “good mother lizard”.

In these limited but potentially dense cues, the exhibition plays the ‘individual’ in its ‘social world’, its uniqueness among the masses. Here, almost from the outset, are the suggestions of the Maiasaur’s “life and times”, its nurturant capacities aligning in an uninterrogated way with its gendered nomination as the “good mother...”. There is no mention of nurturant ‘fathers’ or males. There is instead a matter-of-fact point about who does the caregiving in the life and times of this dinosaur—it is the good mother. Indeed that impression of maternal benevolence reached visitors, as in the case of a woman I spoke with visiting the museum from the USA:

BN: *What would you say the story is of that exhibit, what were they trying to convey to you?*

Visitor: *I would guess, I would have to say that when you think of dinosaurs there were some very good ones and that that particular one was very good with her young.*<sup>13</sup>

The clear sense is that it is “her” nurturance that makes her “good”. The configuring of family, feminine gendering, mothering, nurturance, a “gentle” and “adorable” dinosaur, articulating with ‘families’ as “natural” audiences for this exhibit was becoming increasingly obvious as a working phantasmatic order of the display. Some weeks later, while looking at the ROM’s web pages on the Maiasaur Project, I came across the page presenting this very translation of the scientific name once again. I noted the effect of this semantic work coming through the URL:

<http://www.rom.on.ca/palaeo/Maiasaur/maiamom.html>

There *she* was, interpolated into the web address: “maiamom”.

As discussed previously, Andreas Henson was playing the contrast of meat-eating and plant-eating dinosaurs—but there was also a gendered spin in his equation. In another conversation, he told me that he was utterly conscious of the potential for gender identification in all of this:

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<sup>13</sup> Visitor interview, July 20, 1998, with a woman from Ohio (approx. 50 yrs old).



BN: *Okay...I want to know...how conscious were you? ...Were you thinking in detail, about the political dimensions of choosing the 'friendly' good-mother lizard as the opposition to Tyrannosaurus rex, being a contrast between a feminized association and a masculinist power logic?*

AH: *Yeah, absolutely.*

BN: *You were?!...So who were you discussing this with?*

AH: *... Actually no one. [laughing]*

BN: *No one? You mean, you weren't talking with the exhibit planners or any of the designers?*

AH: *No, no...I came to them with this logic, this vision...whatever you want to call it...*

BN: *And you knew...you were playing all this out?*

AH: *And I think that was part of the initial resistance to it...because they weren't used to thinking about it that way...in a very typical mainstream way, dinosaurs were thought about in this rather nasty manner, as these robust, vicious, aggressive creatures...and to have this other thing, that dinosaurs may have been caring parents, who didn't just drop their eggs on the landscape and wander off...that there might be some kind of community structure, family if you want, parental care, and so on...that's a totally different image of dinosaurs...So basically—and this is a very important metamorphosis—because you basically get away from the notion of dinosaur as monster to dinosaur as animal, capable of complex behavior...So, from primitive brute, you get to this sort of, civilized, developed organism...<sup>14</sup>*

Here Andreas Henson, using a logic of developmental progress, had also taken credit for introducing the greater complexity of the saurian world into the ROM's display economy. It is also clear that he did so with full awareness of how that would be underwritten by cultured, binary gender associations. With a consummate understanding of the deployment of tropes, ironies, hyperboles, Andreas Henson claimed to consciously extend what he thought would play against a dominant public cultural logic that imagined, aggressive-to-passive, masculine-to-feminine relationalities—a sort of progress from monstrosity to animality, from brutishness to civility. His commitment was that if these logics were deployed smartly, the translations would help bring a sensibility of the greater complexity of the saurian world. His calculations, however, had not been able to predict how interpretive

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<sup>14</sup> Interview with A.Henson, Aug. 4, 1998.





planners would fill out his account, underwritten as it was already with a specific normative, heterosexual binary.

### “Family” Audience / Dinosaur “Family”

Andreas Henson was also careful to point out to me how the “family values” story was an interpretive turn from the more elemental dichotomy he was trying to make’:

*...in the script, however, they ran with that notion and you get family values— “the perfect time to raise a family” ...That, I no longer had any input in...that just sort of happened...*

So, having brought these “logics” forward, Henson now appeared to be distancing himself from the narrative consequences once the planners began to translate the logics in their own fashion. Henson continued, offering his thoughts on what may have taken place:

*...Observing in our current social-political context, that’s the emphasis on ‘family values’, the notion that because family values as traditionally defined—i.e. ‘father knows best’—are allegedly deteriorating, society at large is falling apart, and you know we soon have [shifts to ironic tone] roaming bands of god knows what [chuckling] on the street... So, I think there’s a tendency on the part of many educators, to try and preserve the status quo, as in “oh look at this miracle of family”... and I think, even this poor dinosaur was co-opted into this political agenda...<sup>15</sup>*

Henson—reciting what sounds rather like Arthur Conan Doyle’s fear of declining male centrality in the family—had missed how both he and the ‘educators’ were actually working with similar strategies of imagining. From all indications the planners’ motivations had appeared to be just as much located in their particular imagining of ‘family’ audiences and what would be relevant for them, as Henson’s had when he imagined the exhibit’s child audiences dividing up the dinosaur universe into vicious killers and friendly dinosaurs. Scientist and planner were using the same strategies—and for both, these were science/society, nature/culture, materiality/phantasy strategies. For the planners, the translations moved to the inscribing of common “family structure” across the human-saurian

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<sup>15</sup> Interview with A.Henson, Aug. 4, 1998.



divide—something they knew that the history of scientific accounts from Horner (and cited by Henson) would be able sufficiently to uphold. Such implosions, fusions, and articulations produced relevance, relevance that required imagining the audience of the communications. As Sharon MacDonald noted from her studies of exhibition development at London’s Science Museum, “...the very fact that a communication is ‘for the public’, and that it embodies a specific vision of that public, shapes the kind of representation made.”<sup>16</sup>

The gendered positioning of the key translators, the curator Henson and the planner Ross, is also instructive. Both had imagined how audiences would think of this, but along slightly different axes. Andreas Henson, the remarkably self-conscious scientist-curator, is a leading expert on dinosaurs, and among some twenty or thirty professional dinosaur palaeontologists in the world—almost all men. The notable androcentry of this field of disciplinary interest is counterposed by a similar historically contingent situation in the gendered make up of ROM staff. There, Henson is among a predominantly male curatorial staff who have a significant degree of authority in scientific/public knowledge translation. Set against this, is a predominantly female museum programming staff charged with translating the curatorial content for the public. This gendered economy of knowledge production and translation was something of a joke among staff in exhibit programming.

One of them stated it with an anthropological and Lévi-Straussian twist:

*My joke was, “It’s still a hunter-gather thing! “...The curators go out and bring it, and then we have to cook it and prepare it. They bring in the raw stuff and we have to cook it. ...Actually, I think some of the reason ...is that museums tend to be lower paying than a lot of other employers. It is a funny quirky place. There is a lot of men. These communications departments are almost all women. Media relations is all women, Geez...that’s right! Every person in that department is a woman. All the press people who do the press releases. There’s a lot of women in the museum.*

The gendered knowledge economy—expressed directly through wage differentials and professional training disparities—had permeated the very making of this exhibition, and with

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<sup>16</sup> MacDonald, S. 1997:167.



it the naturalistic ordering of dinosaur life that would articulate most with the imaginary of its anticipated audiences.<sup>17</sup>

In another conversation, referring again to her circle diagram (see Figure 26 in Chapter 10), I had asked Jennifer Ross how familial points, which she had aimed at making things ‘relevant’ for the audience, were vetted with the curator:

BN: *What do you think happens when you use words like ‘Maiasaur family’. and ‘Maiasaur neighbours’, rather than words like ‘the hadrosaur lineage’, ‘taxonomy’, ‘social structure’ or ‘systematics’ - the words a palaeontologist would use? What happens when you change that to ‘neighbours’ for the audience? You must think that through seriously?*

JR: *Oh yeah.*

BN: *What happens to scientists ideas? Andreas’s ideas?*

JR: *He was quite happy with it, as I recall. Well, maybe not happy, but he approved it.*

The stewarding of every detail in the making of an exhibition is a practical impossibility, while translation is a practical necessity. As a consequence, Henson’s gendered binarisms passed into the exhibit, subjected to a series of further translations. Here was a very literal train of translations in materially-based phantasmatings, traceable back through the planning process, to the logics of the palaeontologist, through to Horner and Makela’s publication on “evidence of family structure among dinosaurs”, through the revolution in thinking about dinosaur bioenergetics, and beyond.<sup>18</sup> At every step, the phantasmatic logics were also underwritten by the materiality of fossils, of applied scientific techniques in field locales, of graphic verification in technical publications, etc.

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<sup>17</sup> Sharon MacDonald (1997:158-59) pointed out an exactly parallel situation in the Science Museum in London. She notes that the programming team for the exhibition “Food for Thought” were all women, adding: “Team members were relatively low-graded to be charged with the task of making an exhibition...Their gender and status as ‘non-experts’ seemed to become meshed together as markers of difference from what they mostly conceptualized as a traditional and conservative museum establishment in which ‘science’ itself was masculinely gendered....Their identification with the public, then, was an identification with a public which had been disregarded by the museum and scientific establishment; and part of the rhetoric during the making of the exhibition was not just about getting more science to that public, but about challenging some of the establishment high ground.”

<sup>18</sup> Horner and Makela 1979.





On the whole, the women who made up the exhibit programming staff confirmed what Henson had said about their initial resistance, though they also recognized that they were up against bigger, meaner dinosaurs in the consumerist world of public culture, museums, and leisure entertainment. The Manager of Exhibit Programming, Wendy Madsen, had recalled conversations among her staff:

*...We would say, like “this is great, Hollywood’s doing the ‘man-eater’, and we’re doing ‘the mother lizard’” [laughing] ... “Can’t we change the head on this thing that looks like a camel...” We really were joking about it like that, just to say “Oh, my god!” I mean the whole thing is that there’s this T. rex, and it’s this...MONSTER, IT’S THIS MONSTER [growling in imitation] that will eat you alive, and that’s what it’s doing in Jurassic Park... It’s the ultimate man-eater, the ultimate predator, the ultimate threat... So, what do we have? We’ve got THIS DOPEY MOTHER!...So certainly there’s a great interest in dinosaurs, and certainly babies are always big sellers with families... And we had thought...we were promised that there was a baby to this thing... not just a mother, there was baby... We understood we had ‘bought’ a baby... We bought a baby!...<sup>19</sup>*

So, for the exhibit planners and the web page designers, just as it had been for the original finders who named *Maiasaura*, this dinosaur was thought of in terms of a mother, a she, a “maiamom”. Equally to the point—she would certainly not be this man-eating monster which over and over seemed to hover always ominously in the near reaches of public/scientific imagining. Visitors were often very much aware that the museum was working against such images, as in these comments:

BN: *Why do you suppose they have a Maiasaur exhibit here in this museum?*

Sarah: *Maybe to go more one-on-one with a type of dinosaur ... People will learn more about a single thing, and learn more about what scientists know.*

BN: *Is this the kind of dinosaur you would choose to do this with? To do an in-depth story?*

Sarah: *I don’t really know. Maybe something like the Tyrannosaurus or Raptors would have more public appeal.*

Andy: *But the Maiasaur would break the stereotype, true?*

BN: *It would break the stereotype of?*

Andy: *Of the big long green things...<sup>20</sup>*

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<sup>19</sup> Wendy Madsen interview, April 7, 1998.

<sup>20</sup> Visitor interviews, July 24, 1998, with Andy (12) and Sarah (14).



In the course of the development of the project, the organizers would find out that there was no baby dinosaur, that actually there had only been a handful of bones of a juvenile dinosaur found in association with the skeleton of the adult. Nonetheless, this rather story-bookish approach—with good mothers and their babies—had sedimented itself into the process, aimed at an audience of children with adult companions. It appeared that such children were assumed to be familiar with the ‘day in the life’ genre of story-book writing (e.g. a day in the life of: ‘a baby killer whale’, ‘a tiger’, ‘a fireman’, ‘a puppy’)<sup>21</sup>. Among the most popular of feature films on dinosaurs for young children in the early 1990s had been the cartoon animated *The Land Before Time* and its several sequels (which are, notably, productions by Director Stephen Spielberg). Children visiting the ROM who had been through the Maiasaur exhibit helped me understand the connection between those films and this exhibition, as in this exchange with this three school age girls who spoke of the film’s nearest Maiasaur equivalent:

Susie: *And my favorite one on Land before Time is Ducky...*

BN: *Duckie...?*

Susie: *Duckie is a water one.*

Maria: *Duckie is a little water one and he is green.*

Anne: *One of those duck ones, ...with the face*

BN: *Oh.*

Susie: *And it’s really small, like that. And the mother is huge.*<sup>22</sup>

The Horner and Makela accounts had traveled widely into popular culture terrain, and were here carried back into the legitimation space of the ROM—strong articulations.

The approach to storyline was becoming ever more clear: this is more or less a domestic life biography of ‘a dinosaur’ in its life world in other bygone times, the life and times of this particular dinosaur, this particular Maiasaur. Indeed, this seemed quite reasonable, as

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<sup>21</sup> Biography may well be the adult translation of this genre, signalled typically by phrases like “the life and times” of the noted person. For a sampling of genre’s of children’s literature see Lukens 1999:13-40, Chapter 2, “Genre in Children’s Literature”.

<sup>22</sup> Visitor interviews, July 26, 1998, with three young girls (all around age 7).



Jennifer Ross, the storyline developer for the exhibition had told me that her first and guiding text for the exhibition had been a children's book.

## Elementary Structures of Kinship

*...Kinship is not only about relations between and among humans, and not even about humans in a sense that is based upon, or drawn by analogy from, animals, as was Darwin's quintessentially modern claim. Perhaps in speaking of kinship in the postmodern era, or of postmodern kinship tout court it becomes necessary to think about the constitution of what can stand as a kind or type at all.*

—Anthropologist Sarah Franklin, on the "Idea of Relation"<sup>23</sup>

On continuing through the exhibition space, the performative consequences of all of these curatorial, planning and translation moves would similarly become apparent. From my perspective, the technicalities of science seemed relatively absent thus far. Ahead, however, lay labels, specimens, and cabinets, reminding me that this was a museum in a more traditional sense, a place of authority and seriousness, of things normally beyond the everyday reach of most who would visit here.

The area was subdued but theatrical, with spot lighting to highlight the cases and the texts. The pewter Maiasaur, in similar fashion, had been dramatically lit, casting sharp-edged shadows, increasing its visual allure, its value as precious commodity if not as official specimen. Akin to a department store show window with an array of merchandise, this space of fossil showcases also spoke to public sensibilities of "displayed-worlds" which so regularly inform consumer life.<sup>24</sup> Though referring to a science exhibition which directly borrowed on the 'supermarket' metaphor, Sharon MacDonald noted the practiced connection of shopping and display viewing in which consumerist logics are "there already in assumptions about consumption as a key means of expressing individuality, activity as choice, objects as commodities,...and museums as part of the marketplace."<sup>25</sup>

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<sup>23</sup> Franklin 1997b.

<sup>24</sup> cf. Harris 1990.

<sup>25</sup> MacDonald 1998a:136.





Performative frames of experience are recognizable as an everyday dimension of contemporary social experience when such linkages of the theatrical with museum display and with consumer shopping experience are considered. A spectrum of actions including <object+display>, <commodity+commerce>, <specimen+spectacle>, <performer+stage> are hooked together in the embodied sense of performative practice. Without that practiced sensibility, how well could the *Maiasaura* exhibition have communicated and extended its meanings in the world? I had to wonder whether the penetration of consumerism in the instruments of exhibitionary mediation was not already so highly entrenched as to be quite intractable. The distinctions between market, audience, consumer, visitor, blur all the more in such a place of familiar encounters.

So, in the same instant that the exhibit fetishized the entry *Maiasaur*, giving it an aura of preciousness by the choice of material, emphasized further by the theatrical lighting, it also continued to press the message that the *Maiasaur* was an object which could give entry to the familiar—an everyday experience. The exhibit would continue to articulate this stand-in dinosaur to the human world by increasingly deploying familiar tropes from human domestic experience, tropes which suggest that this dinosaur had a domestic life as well. Distance between viewer and object were being reduced, affinity and connection increased. Scale and tactile contact along with such domestic sensibilities and everyday practiced experience of displayed-world engagement, combined to provide the visitor with a very non-threatening introduction to this dinosaur. One might even develop a sense of communion.

Inside the collections display area of the exhibition [see Fig. 34, page following]<sup>26</sup> (the section which planning documents labeled “The Cretaceous Period”) were: two ranks of specimen-bearing glass cases (known by designers as “freestanding showcases”), and; three central pedestals (known as “table cases”), two of which also contained specimens, and the

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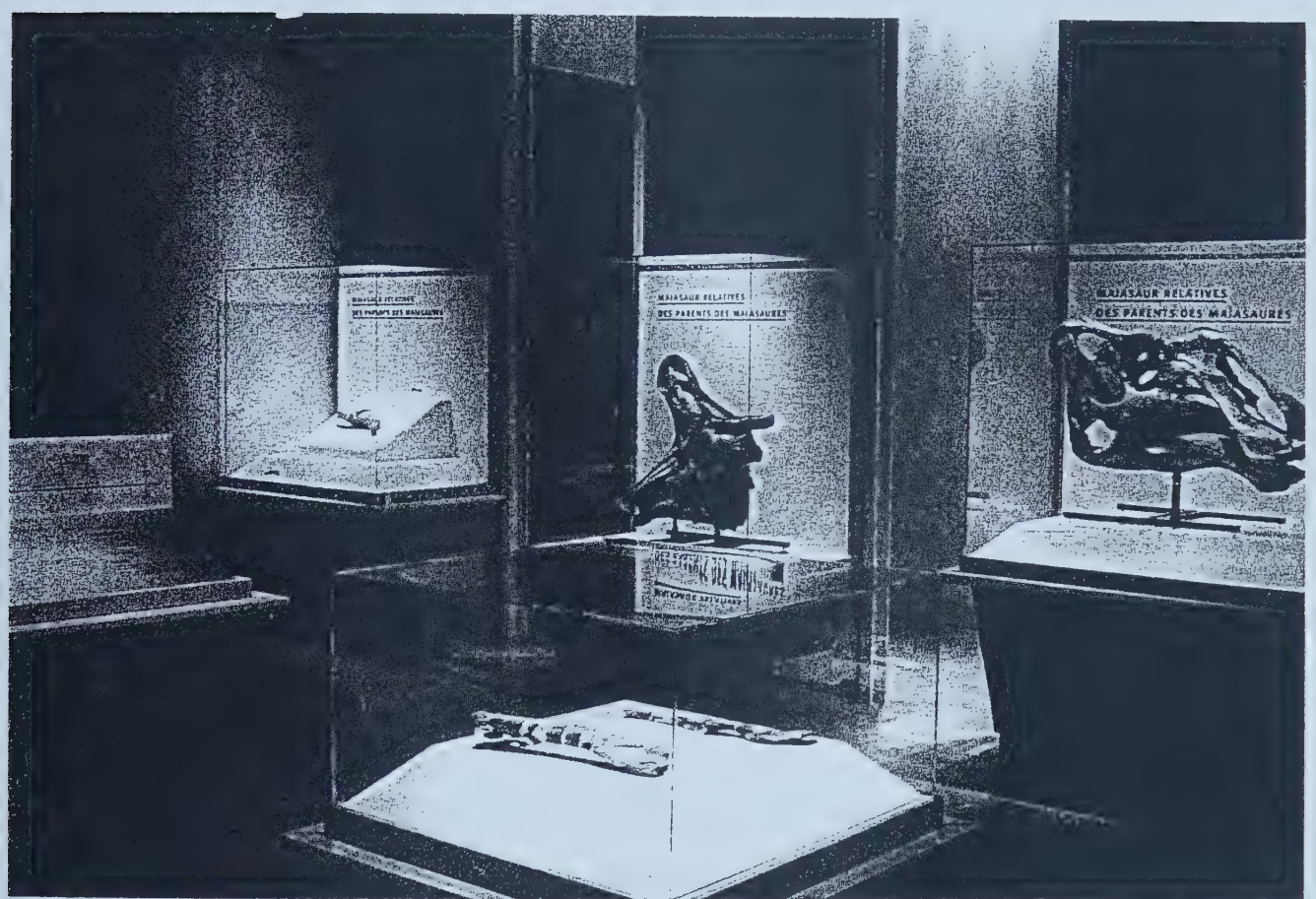
<sup>26</sup> Figure 34, Photo of Fossil Specimen Gallery by Brian Boyle, ROM; Photo reproduced with permission of the Royal Ontario Museum.



**Figure 34** (p. 266a)

## The Cretaceous Period Fossil Gallery

Source: Royal Ontario Museum, Photograph courtesy of the Royal Ontario Museum, © ROM.







third bearing only a graphic element. Inside each freestanding showcase was a printed text signaling what was being looked at. One label indicated “*Maiasaur Relatives*” or in French “*des Parents de Maiasaura*”. The terms offered a literal impression of kinship, of saurian affinities. In the showcase on the opposite side, the contrasting texts read, “*Maiasaur’s Neighbours*”, in French, “*des Voisins de Maiasaur*”. Interestingly the cabinets were mostly full of ‘skulls’ or jaws, as noted in this schematic of this first segment of the exhibition:

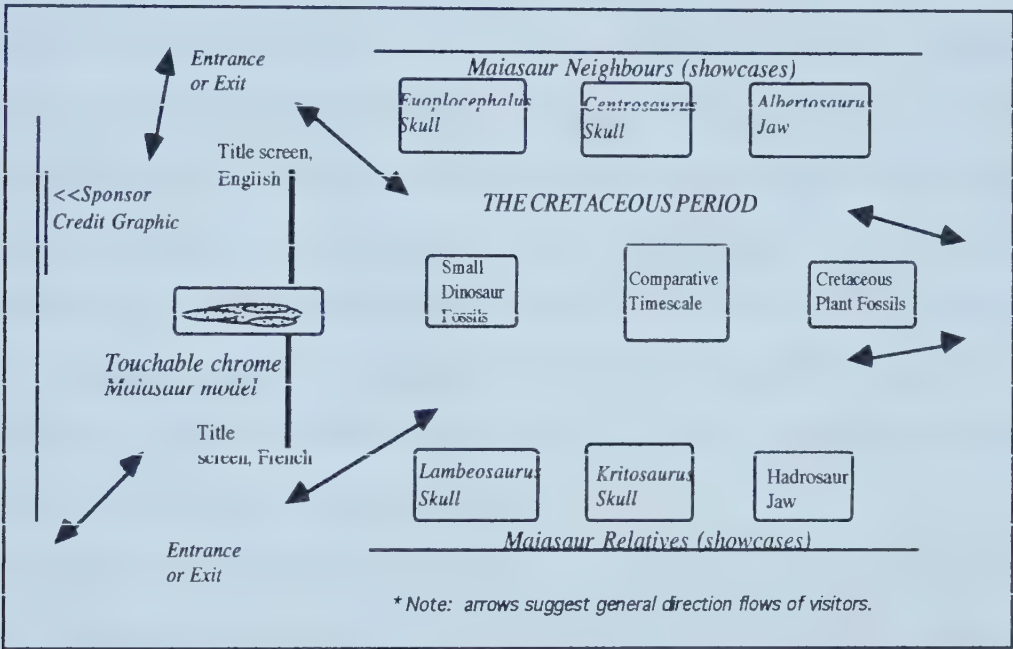


Diagram 5. *The Cretaceous Period* or “*Maiasaur Relatives and Neighbours*”, Exhibition Entryway and Showcase Gallery

The showcase pedestals had what the design diagrams called “ribs”—more or less scroll-cut wooden forms—at the base of each showcase. I mused over the inference of being not just in Walter Tomasenko’s “living, breathing environment”, but indeed, in the belly of some beast, knowing full well that I was in air-conditioned rooms in a large Canadian museum. Given its position in the space, the first table case along the central axis seemed a likely place to find the next node along the ideal knowledge-guiding path of the exhibit—though I later noted that visitors often only randomly looked at this case among the several available, if at





all. I glanced at its contents, and sure enough, found some opening statements from the guiding narrative. The labels declared what was here:

Original bones from *Maiasaur* (juvenile tibia and humerus)

World Premier: You are looking at recently cleaned fossil bones of *Maiasaura peeblesorum*. The ROM's *Maiasaur* is the best specimen of its kind found to date. It can take more than two years to separate an entire skeleton from its rock matrix and many surprises can occur in that time. You can watch this process at the other end of this exhibit.

[Blackfoot Nation Land, Northwestern Montana USA, about 80 million years old.]

Though I was uncertain of who would read these texts, this narrative anticipated the totality of the exhibit, noting the “process at the other end of this exhibit”. At the time of this walk-through of the exhibit, the preparation lab had been removed from “the other end of this exhibit”, the fossil “cleaning” completed some 18 months prior. The contents of this case were changed from time to time over the course of the two-year specimen preparation “phase”, displaying elements which had most recently been prepared. The first to have made their way into this cabinet were the foot bones of the specimen—as mentioned, the skull of the beast never did in fact make it into this cabinet.

The off-hand noting of the discovery locale, “Blackfoot Nation Land, Northwestern Montana USA” was notable for what it did not say.<sup>27</sup> Unspoken, unwritten, yet implicit here was a process of museum acquisition—this may be from Blackfeet Indian land, but it was now the “ROM’s *Maiasaur*”. Where would this unpacking lead, I wondered at the time. Would the exhibit tell me whether the museum was given the specimen by the Blackfeet? Whether ROM collected it? Whether or how much ROM paid for it? Why a dinosaur from Montana was collected, rather than from Canada? I had to assume the exhibitor’s intent was that these were not things to bother over, however, as they were not points raised explicitly in this part of the exhibit. As already noted, a very incomplete tale of the initial discovery of the specimen was offered in a video display. However, on this day it had been removed

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<sup>27</sup> This text seemed to be a political point of sorts—an unexplained recognition that the “Blackfoot Nation” (which the people of the Cutbank and Browning area would correct to read properly as “Blackfeet Nation”) should be acknowledged. At the same time it was within the context of a state geography, and that in turn embraced by the great embracing nation—USA.



from the Maiasaur exhibit space into a nearby gallery, such that it was mostly overlooked by visitors. This fossil showcase section of the exhibit attended to different concerns—concerns about comparison, sameness and difference, classification, and family living.

In the showcases to the right were the “Maiasaur relatives”. Here again were the translation terms from Jennifer Ross’s circle diagram. Maiasaur relatives are those of other sorts of duck-billed dinosaurs— “*Kritosaurus*” *notabilis*,<sup>28</sup> *Lambeosaurus lambei*, and an unspecified Hadrosaur—helping to place the Maiasaur in a larger classification, a kin grouping—expressing, however weakly, a remote articulation to technical knowledges of its systematic relationships.<sup>29</sup> Affinity was signaled in the accompanying descriptive texts as in the case of “*Kritosaurus*” *notabilis* which, “Like its relative *Maiasaura*, *Kritosaurus* was a flat headed hadrosaur without a distinctive crest”. Difference was signaled in the labels, with the *Lambeosaurus* skull, noted as a “‘crested’ hadrosaur”. As important as sameness and difference in the order of life when thinking of the individual, it was clear from these creatures that the Maiasaur was not alone in its life and times. Like the human audience for this exhibition, this dinosaur had relatives—part of the security of life in Maiasaur’s world of relationality, familiarity, and sociability.

To extend this effect, just as any person/dinosaur should have *relatives*, so in living in a given locale, they should also have *neighbours*. Opposite the ‘Maiasaur relatives’ cases are the ‘Maiasaur neighbours’ cases. As with human experience, domestic life for this Maiasaur is not only about having relations and sharing a social world with those displaying recognizable physical affinities—it is also about sharing it with those who exhibit physical difference. I had an odd sensation: could this be an analogy to everyday human life in

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<sup>28</sup> In the display, the name ‘*Kritosaurus*’ was marked with quotations. No explanation was offered for this marking in the exhibit. The actual reason was that the nomenclature is disputed within the palaeontology community. In the absence of an explanation, this gesture would probably be understood by the typical visitor as having been a typo.

<sup>29</sup> See discussion in Chapter 5, this volume.



Toronto, a city touted as one of the most ‘multicultural’ in the world, a place of tolerance for difference?

Those who are different from the family-forming ego of this story become “neighbours”, including herbivores like *Euoplocephalus tutus* and *Centrosaurus apertus* and even carnivores like *Albertosaurus sarcophagus*, the latter noted in the accompanying texts as, “The terror of the many plant-eaters of the Late Cretaceous”. Here was a reminder that some neighbours may be less friendly than others. This was a notable turn from the fiercely competitive envisioning of former dinosaur worldmakers, like Osborn and Knight who inscribed the natural life of Darwinian struggle in their exhibitionary and artistic projects, pitting carnivore against herbivore in repetitive ‘battle’ scenes. Here instead was something reminiscent, for me at least, of the story of Canadian multicultural experience, combining a value for genealogical commonality (relatives) with a tolerance for racial and ethnic difference (neighbours). Nonetheless, there was an ego-identity in this tale—the “good mother lizard”. In this space of varied sensory experiences, the predominant thematic of cozy domesticity and the “fact” of mothering kept returning.

I recalled how Interpretive Planner Ross had stressed the key to an exhibition was in making it “relevant”, to animate it somehow for a visitor. On first consideration, bones and skulls and skeletons on their own lacked animation in the strict sense. Yet there was relevance here: the relevance in the “life and times” story, and specifically in the building story of affinity and relation.

Still, it has to be said that bones and skulls do signify on their own in the museum setting: they offer a sense of relative scale, they contrast, they stand as exemplars, they are parts for larger wholes, they are real or copies, they are mounted as technical objects. These particular items are presented in their plexiglas boxes as informational black boxes—where knowledge of them is assumed as already known to those who present it, but requires elucidation for those who look upon them. Apart from the relations story, then, a





secondary, undergirding logic operating in this display was that the didactic information included with these little elements of the authentic was true scientific knowledge—knowledge *in* through the specimen, knowledge *out* through the spectacle. In relation to the entire exhibit, this space operated to convey a partial sense of the material basis for knowing about the life, times, and relations of this kind of dinosaur, while suggesting that knowing would gradually be imparted. Sharon MacDonald summed up this sort of operation succinctly:

*...one effect of science museums is to pronounce certain practices and artifacts as belonging to the proper realm of 'science', and as being science that an educated public ought to know about.*<sup>30</sup>

In a very practical sense, the untouchable specimens presented here attested to a proper ordering of life known through science: *Maiasaura*, like the humans visiting this exhibit, occupied a mostly friendly world of neighbours and relatives—with the occasional lurking terror, shades of the tyrant king.

To some extent the gallery of dinosaur heads and jaws had also capitalized on scale—but only suggestively in the sense that the entire animal forms were not placed on display, only their heads. The greater promise of these showcases, then, remained in offering the authenticity of the fossils as the ground on which true relationships were to be known. Of note, only some of the bones were 'real', 'original' fossils, while some were casts. Yet visitors repeatedly reported to me on the requisite authenticity of this material, as in the case of fourteen year old Tracy:

*It looked real...it should be real...it's supposed to be history.*

If it was not real, or a real-enough facsimile, would it then not count as history? With a similar faith in the museum as site of the authentic, Marisa, an eight-year old, pointed out:

*They sort of looked old and raw, and also because, like, why would it be in the museum if it's not real? Where else would they put it?*

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<sup>30</sup> MacDonald 1998b:2.



Unable to imagine another suitable locale for real things, for this girl museums were a last remaining repository for the authentic. Yet another eight year old, Jenna, remarked:

*Well it's probably real because, um...I think they had a silver band and if you passed it the alarm would go on so it would be very, very precious...*

While there was no silver band, realness nonetheless equated to extreme value, preciousness, the need for security. Continuing our conversation this girl also told me why it was ultimately important to have these precious things in the museum, and what was expected to happen:

*You show them, so other people can see them... After that, they can learn about them, just to see how big they are and um, see what they look like...*

Here was the same motion, performed by curator, planner, designer, and eight year old visitor alike: the move from the specimen as thing you see to spectacle as what the thing actually looks like.

The fossils did not act alone, however. In this rather traditional display area, the showcases themselves were doing a particular sort of knowledge-training work, acting upon the responses of the visitors. The plexiglas enclosure allowed viewing, but not touching. A separation between the precious thing and the viewer had been achieved. This was all in keeping with the other galleries in this institution which coursed through natural histories of the world and the region, through civilizational histories of the “west” (e.g. ancient Egypt, “near Eastern”, classical Greek and Roman, Europe) and the “east” (e.g. Dynastic China, classical India). In every instance, precious glass-encased objects, artifacts and specimens were displayed to the passing viewer. None of this is that surprising in relation to the western history of museums, which have long served to authenticate, present curiosities, produce awe and inspiration.<sup>31</sup>

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<sup>31</sup> See Ames 1986; Bennett 1995; Hooper-Greenhill 1992; Impey and McGregor 1985; and Findlen 1994.



In this setting, however, the semiotics of the ultra-modern, pewter dinosaur custom-made for this exhibit took on a redoubled potency. Its gleaming silver quality ensured that it obtained the aura of a collectible piece, and yet, this object was not contained in glass boxes. Rather, it was quite fully accessible, fully touchable. This gallery imposed a distributed sense of what could be touched, how, by whom, and to what end. A doubled possibility of embodied engagement was offered to the visitor. First of all, in this exhibit of the rare and the familiar (or the familial), direct contact with the simulated and representational thing through the touch offered the chance to commune with this created world. But secondly, separation from the original behind glass or through a video screen, accessible only by looking, rebuilt distance from and respect for the original, the specimen, the thing made exceptionally real. To be sure, specimens and artifacts are meant in most circumstances to be untouchable. That is their invested power.

One strand of the tale I was beginning to piece together from the juxtaposed elements thus far in the Maiasaur Project exhibition went as follows: *once you have been attracted by the wonder of the total animal in touchable, precious miniature form, the first thing to be known is fossils of skulls, the real, all the more precious things; looking face to face at them reveals similarities and differences in the animals, and these in turn reveal relationships and segregation of kinds, relationships and difference that will be familiar.*

At every step, at every node, a variable connection was forged between the thing and visitor. Through the medium of a shareable imaginary, the full set of input knowledges provided in the translations of scientist, media producer, technicians, writers, managers and promotions specialists, came to be processed in such a manner that it would connect with the knowledges of the visitor.

A crucial feature of that shared imaginary was genealogy, kinship, as a means for defining affinity and difference. In this instance, the promise of the showcases was their suitability for comparative, typological arrangement. Comparing heads of “relatives”





allowed for the ordering of affinity, of similarity. Comparing heads of “neighbours” allowed the ordering of alterity, of difference. While a far cry from “phylogenetic systematics” which I discussed in Chapter Five, an elementary form of comparative anatomy was here performed. While the exhibit stopped at physical linkages between the animals, visitors read into this biology social meaningfulness. One visitor responded to my question:

BN: *What is the name of some of the Maiasaura’s relatives? Do you know the name?*

Katie: *I can’t remember what the names were.*

BN: *Do you know what general kind of dinosaur Maiasaur is?*

Katie: *Well, I could sort of describe it, but I am not sure if there is a technical name for it.*

BN: *Or a common name?*

Katie: *Well, it is leaf-eaters who take care of their young. I’m not sure if there is a common name for it.*<sup>32</sup>

The project of comparative anatomy and evolution was only a side-story of this segment of the Maiasaur exhibition. This was an exhibit intended to be about one kind of dinosaur, or more emphatically, one individual dinosaur in a complex bygone world of story-book ‘neighbours’ and ‘relatives’, scenery, babies and mothers.

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<sup>32</sup> Visitor interviews, July 26, 1998, with Katie (12).



### 3—Into the Time-Space of a Maiasaur Neighbourhood

*What I take away is the way that they showed the earth, the evolution, 80 million years ago. You go back and see how everything fit into place and how it was, and where the dinosaurs were.*

—Martin, college geology student, age 22.<sup>33</sup>

To this point in the exhibition, the computer and AV interactive components of the display were yet to be directly encountered—there were sounds emanating from rooms beyond, but so far, the display continued as an array of static elements. After the pewter Maiasaur, the next highly-used tactile element—though not conceived as an “interactive” component—was the graphic time line situated at the centrepoint of the showcase gallery, between Maiasaur’s neighbours and relatives. The display began orienting visitors now to the story of lived relations in time and space.

To reinforce the earlier, possibly overlooked message that Maiasaur had lived 80 million years ago, this pedestal graphic presented a ‘chronology’ with key times noted. The beginning of this time-frame was the ‘origins of dinosaurs’, “230 million years ago”, then the beginning of the Cretaceous, “145 million years ago”, then the time of *Maiasaura* “80 million years ago”; then the extinction of the dinosaurs “65 million years ago”, and finally, the appearance of human “5 million years ago”, leading ultimately to “today”. [see Fig.35, page following]<sup>34</sup> As with the model Maiasaur, signs of tactile interaction were more than evident: the most touched parts worn down by hands or fingers pointing, tapping, circling.

While many communication goals for the exhibit shifted, Jennifer Ross stressed how temporal orientation was essential to “cohesion”:

*I remember the task of bringing it into some kind of cohesion... We had no problem attracting people here, but what would I like someone to come away with? I said to*

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<sup>33</sup> Visitor interviews, July 26, 1998.

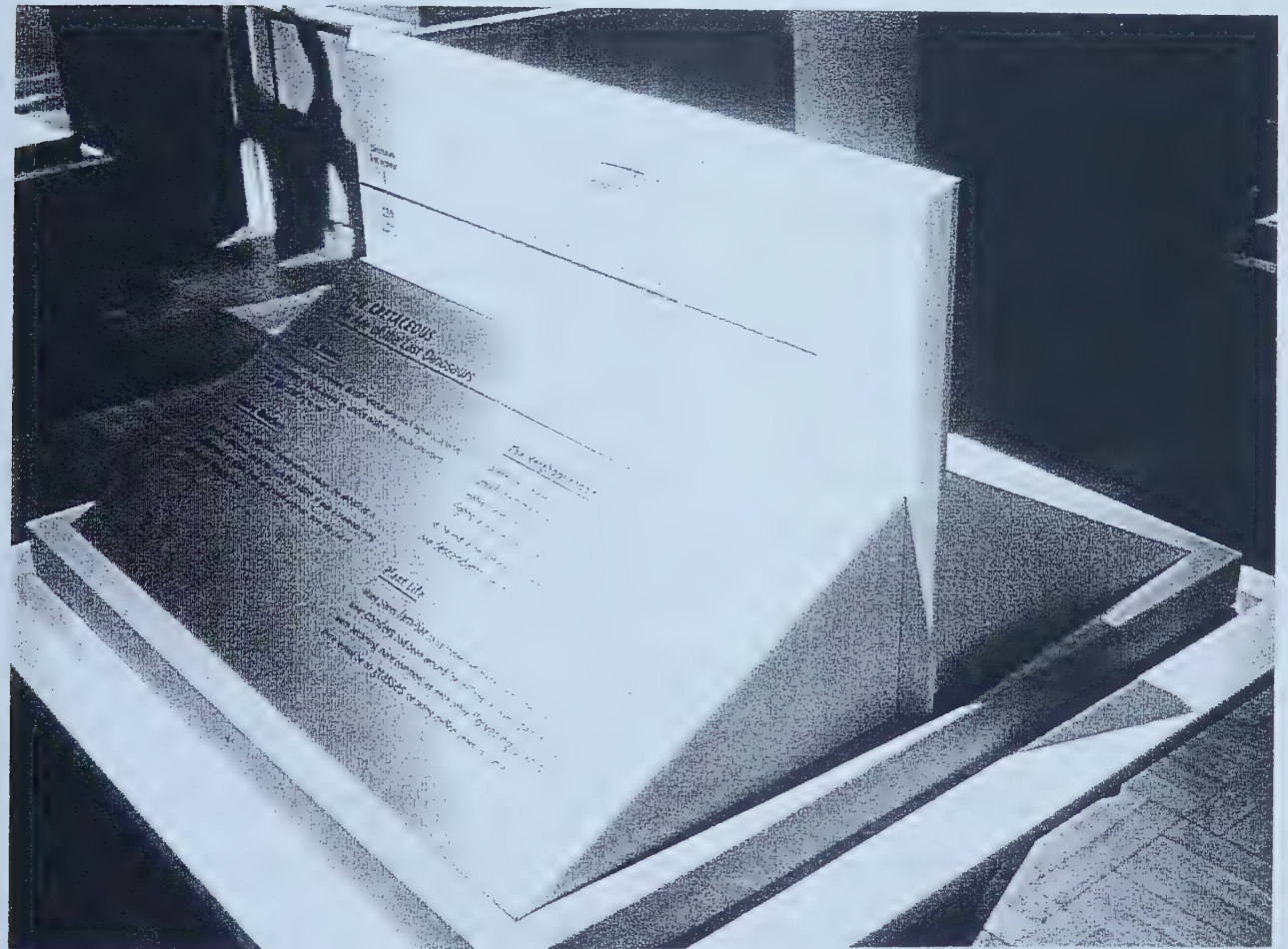
<sup>34</sup> Figure 35, Timeline Pedestal display photographed by Brian Boyle, ROM; Photo reproduced with permission of the Royal Ontario Museum.



**Figure 35** (p. 275a)

## Pedestal Display Locating Maiasaur in Cretaceous Time/Space

Source: Royal Ontario Museum, Photograph courtesy of the Royal Ontario Museum, © ROM.







*myself, “I would like them to know what a Maiasaur was...what the Cretaceous is.” Just that. They don’t need to know about the Jurassic and all that stuff. ...So I used the word “Cretaceous” a lot. I hit that “80 million years” when this one was supposed to be alive, and Maiasaurs in general. Just try to ...drill home a few simple things. I thought you can’t possibly come away with everything.*

Chronotopical gestures would locate *Maiasaura*—that was the minimal expectation, and, based on my interviews with visitors, it was one that the exhibit did indeed meet.<sup>35</sup>

Interestingly, the dominant flow of intelligibility was indicated by tactile wear patterns on the timeline. The most worn ‘moment’ was that of the appearance of humans. I imagined a visitor thinking, declaring, “Here, this is the beginning of us. We are human!” The next most worn was the appearance of dinosaurs—the imagined thought now being “And, that point was the beginning of them...when the dinosaur’s world began!”. The third most worn area was the extinction of the dinosaurs—“There, their world came to an end...But we live on and we know them from their remains”. The last worn area is the Maiasaur times of 80 MYA—finally, the creature of this exhibit has been located, the wear pattern suggesting the gradual zeroing in. A circle demarcates the Late Cretaceous, literally circumscribing a space, a *space* which signifies the *time* of Maiasaurs.

In effect, this highly-engaging interactive element had worked as a navigational device, the means of orienting visitors to the chronotope of the Maiasaur. It had permitted an imaginary ‘leap’ back to the time/space of a dinosaur, its relatives, its neighbours. This, then, was also necessarily a tale about us *and* them, but also us *as* them, about our similarities with them as well as our differences from them. It was an orientalist tale in the general sense suggested by Edward Said.<sup>36</sup> Museum curators might very well deny that such comparative work occurs in their research or exhibitionary practices, but here it was

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<sup>35</sup> I interviewed over 40 individuals. Most could recite the name of the dinosaur, that it was a plant-eater, and that it lived “80 million years ago”.

<sup>36</sup> Said 1979.



operating freely in what is considered by many to be Canada's leading museum of nature and culture.

The direct use in the display of the terms "us" versus "them" are not needed. Rather, they are embedded logics of the display. They are elements of its phantasmatic tissue. It was visitors who made me realize these very anthropological characteristics of *Maiasaura*, as in the case of 14 year old ROM visitor, Katie, whose knowledge of dinosaurs was virtually encyclopaedic and who especially identified with duckbilled dinosaurs:

*...they were more family-type dinosaurs, and I am really connected to my family and relations and so were they. I think they said by the model, there, that they travel in packs. With people, we live in cities. So they're a sort of sociable type animal, just like us...*

### The Domestic Nature of the Maiasaur Family Life

In due course, the bodily agency of tactile contact was brought fully into play at the first of the two multi-media interactive consoles, that of the *Maiasaura* life and times videos, known to the exhibit developers as "A Visit to the Cretaceous". (n.b. The second and larger console, which features the loud running images I have already referred to, is discussed in the next chapter.)

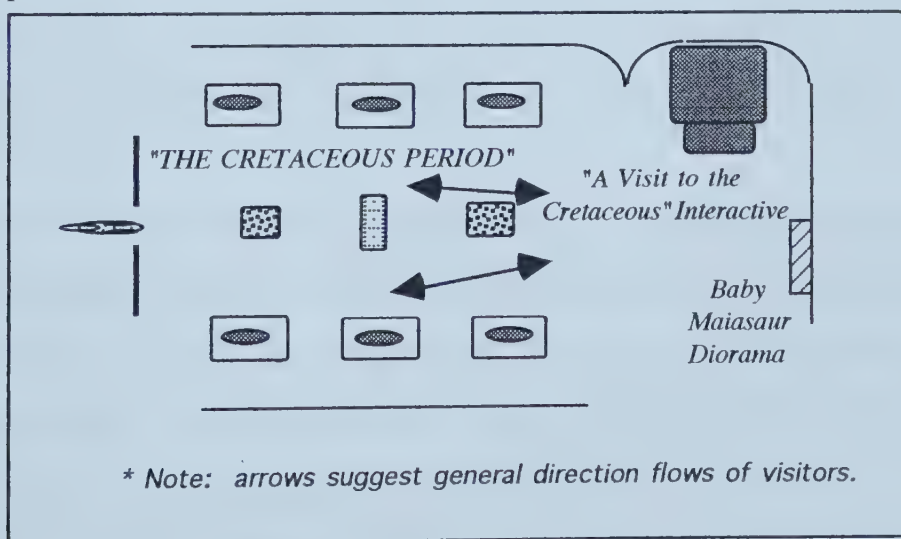


Diagram 6: *The Cretaceous Period*—Location of "A Visit to the Cretaceous" Interactive and Baby Maiasaur Diorama



This was a rare encounter at the ROM, an interactive console. The console and video unit were constructed as a single integrated cabinet. The front console extended forward angling toward the visitor, almost like the instrument panel of an aircraft or a video game—or from popular television culture, like the helm of the Starship Enterprise.

The default screen image which appears when the console has not been activated by a visitor is a slowly transforming title image—referred to by some of the exhibit developers as a “screensaver”.<sup>37</sup> First a rockface with a slab apparently missing, the title ‘ghosting’ up, word by word—*the — Maiasaur — Project*. Then in the opening, the sub-title materializes in similar fashion: *life and times of a dinosaur*. The gentle, digital rise and fall glissando plays softly through its cadences during this almost hypnotic sequence. The sub-title fades then back and the form of a skull materializes ghostly, largely filling the slab outline—it is a skull reminiscent of the “Maiasaur relatives” already met. Finally, suggestive of some ultimate act of magical resurrection, the skull-form cross-fades and transforms into a fully fleshed out form—it is also a face already met, the same face as the pewter Maiasaur model. These apparitional, materializing acts have been about coming face to face *with a face of the past*, a “looking glass world” where a saurian individual exists in a lineage of relatives, a neighbourhood—much like the visitor looking on. [see Fig. 36, and cf. Figs. 37, 38, pages following]<sup>38</sup>

Overhead, above the screen, if you looked up to notice, was a sleekly stylized moth-like form in chrome mesh. This was one of the design elements meant to cue the meeting of the organic and the technological, extending the effect of the chrome-mesh title screens and the silver Maiasaur model. I had never noticed this rather subtle feature until one of the children I interviewed told me that his favorite element of the exhibit was ‘the ceiling.’

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<sup>37</sup> Term used by Lockett, C., L. Menna, and E. Walker [1998] “The Effects of Technology-Based Devices at the Royal Ontario Museum: Observations and Visitors Perceptions”.

<sup>38</sup> Figures 36, 37, 38, Images of illustrated Maiasaur ‘face’; Images reproduced with permission of the Royal Ontario Museum.

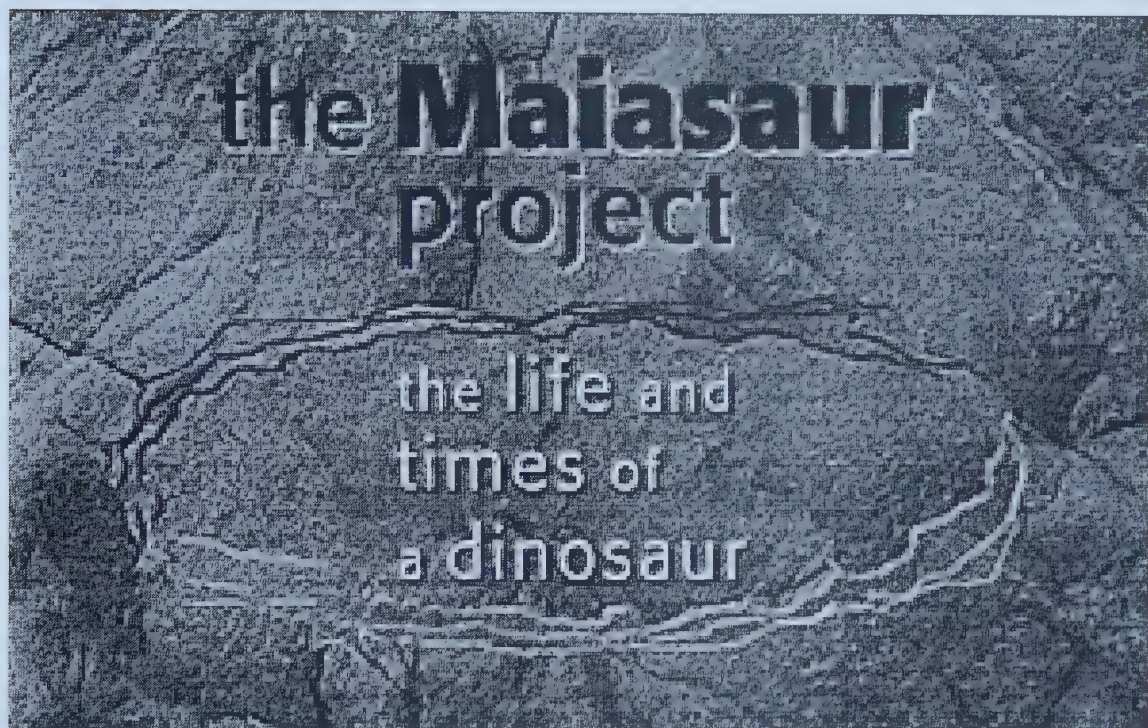




**Figure 36** (p. 278a)

**Maiasaur Ghost Title in Rockface**

Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.





**Figure 37** (p. 278b)

**Wayfinding Skull Form**

Same 'face' as in Rockface title graphic, model, and computer animations

Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.







**Figure 38** (p. 278c)

**Wayfinding Skull Form, as Seen Hanging Over Rotunda Railing**

Same 'face' as in Rockface title graphic, model, and computer animations

Source: Royal Ontario Museum, Photograph courtesy of the Royal Ontario Museum, © ROM.







The interactive console was low enough for a small child to reach, and presents an array of eight round palm-sized buttons. The illuminated buttons are enticing, with backlit images to draw attention to the choices offered. There are three different legend texts: *A Cretaceous Neighbourhood*, *Cretaceous Continents*, and *A Maiasaur Family*. In the center is a computer “joystick”, familiar from home computer games. The repeated actions I witnessed here were touch, pause, watch—view—select, touch, manipulate, watch—view again, select again, and so on.

Watching one child, the first selection was made. “A Cretaceous Neighbourhood” button was manually pressed, and “A Cretaceous Neighbourhood” was activated on the monitor—cutting off the transforming Maiasaur rockface-skull-face-title sequence—animated dinosaurs, plant fossils, lists of scientific names of new plants appear amidst an image montage. Then the gentle tones of a woman’s benevolent, warm voice which I had been hearing at a distance rose and fell. I picked out fragments of the narration, ending on the chorus with which I had become so acutely familiar—“a perfect time for raising a family”:

*The Cretaceous Neighbourhood, eighty million years ago...The Rockies are just rising...A shallow sea covers much of central North America...The weather is warm year-round...Plant-life is teeming...Old kinds of plants live alongside new kinds ...Broad leaf trees crowd out the evergreens...And for the first time flowering plants abound...the late Cretaceous teemed with life...It was a perfect time for raising a family....*

The showcase with fossil plants began to make narrative sense, in relation to this “Cretaceous Neighbourhood” video story on the ‘explosion’ in flowering plants. The agency of the story here is in its ability to create a seamless bridging between showcase and video cabinet, the former containing fossils the latter containing scenes. That agency conjoins objects of the present with reconstructed world of the past—and back again. Henson’s technical point about co-evolution of diverse ornithopod dinosaurs and flowering plants had precipitated into this domesticated outcome—“a perfect time for raising a family”. More to the point, this was fully in accord with all the logics of palaeontological gendering,



family structuring, historical oppositions of mean and friendly saurians, audience imagining, popular culture, and co-evolutionary hypotheses—all that the sociotechnical, public/science network had invested. This was an exquisite moment, not of “co-optation” as Henson had suggested, but of implosion, of precipitations at the nexus.

As to the exhibition overall, its carefully crafted narrative apparatus appeared to be remarkably cohesive—even if, as I would find out, most people visiting did not read as closely as this, nor did they walk the idealized path or get close enough to properly sample all the components aligned according to this highly-articulate narrative. I also learned that many people fill in what they see with their own knowledges, cobbling together rather personalized narratives and scenarios. Nine-year old Alex described to me what he knew: *...usually dinosaurs when they were living, they weren't alone. Like, they had other dinosaurs close to them. Nearby. Same as people...actually, the Maiasaurs were in big groups. There would be a few families in each group. I'm not sure but I think the Maiasaura - some animals today, they kept the other families' babies. Maybe the Maiasaura did that.*<sup>39</sup>

This was typical of many children visiting, who could recount to me surprising, odd things about dinosaur behaviour, elaborating what they witnessed in the exhibit, but often contrary to the messages intended.

Evan, a five-year old told me, *...when I was there and...that thing which is always running...I peeked around the corner and saw it digging its nest with its head! I didn't know it did it with its head. I thought it did it with its nose!*<sup>40</sup>

Such a behavioural detail considerably exceeded strict technical work in palaeontology.

Nonetheless, because of this video presentation, Evan now “knew” his error.

Notwithstanding his extensions on the story, the bodily action of moving, peeking, and comparing which Evan exemplified, along with touching, selecting, and looking, were anticipated as part of the planned experience. The entire exhibit, as well as the interactive

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<sup>39</sup> Visitor interviews, July 24, 1998.

<sup>40</sup> Visitor interviews, July 24, 1998.



console was meant to subtly direct interaction, and connection-making. While the left to right arrangement of options on the interactive console (following literate European reading conventions), were typically chosen in that order, the central buttons with their associated joystick captured greater interactive attention. The central buttons on the console were titled “Cretaceous Continents”, and presented visuals of the globe with continental configurations which were continuously reconfigurable by manipulating the computer joy stick. Choosing an option for a global or North American view, the visitor could manipulate the handle, moving a cursor along a time scale ranging from 80 million years ago to “0” million years. Terrestrial shapes of “America”, “Africa”, “Asia”, and the “Pacific” would transform over the implied passage of time.

Much as the timeline had zeroed in temporally, the North America selection would zero in spatially, aiding in locating the area where the *Maiasaur* lived. There, on the screen, was the “shallow sea” gradually covering “much of Central North America” as mentioned in the video. By following the transformations from the familiar present, to the alien past, the total world moment of *Maiasaura* was established. The imagining of a visit, of travel across time and space, to a Cretaceous Neighbourhood had been achieved through this device. As two university students enrolled in a geology program told me:

Martin: *The way that showed the earth, the evolution, 89 million years ago. YOU GO BACK and see how everything fit into place and how it was, and how the dinosaurs kind of where they were.*

Andrea: *TO SEE TIME, the changes*

Martin: *You could actually see it... I have seen pictures of stages, but never, step-by-step how it came together.*<sup>41</sup>

The third selection from the console is named: “A *Maiasaur* Family”. The animation imagery of this video was familiar to me from a 1980s CBS series *Dinosaurs!* hosted by America’s voice of the Space Program, Walter Cronkite. The 1980s had seen a host of

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<sup>41</sup> Visitor interviews, July 25, 1998 with Martin (21) and Andrea (20).





documentary films on dinosaurs produced for broadcast on Canadian, British and American television networks, films which had picked up on the “revolution” in scientific thinking about dinosaurs incorporating all manner of propositions: “hot-blooded” dinosaurs, herding and migrating dinosaurs, intelligent dinosaurs, biochemical analyses of dinosaur bones, dinosaurian-avian evolution, pack-hunting dinosaurs, and indeed, from Jack Horner, parental care, eggs and babies, and nesting behavior in dinosaurs.<sup>42</sup>

The obviously modeled dinosaur ‘face’ that appears in this animation<sup>43</sup> was somewhat different than that of the metallic entryway Maiasaur—no explanation was given. In what appeared as morning light filtering through the canopy of a deciduous forest, the animation samples sequences of an adult Maiasaur pushing earth around what appears to be a ‘nest’, a ‘baby’ dinosaur stumbling to stand on wobbly legs, the adult dinosaur touching the baby gently, nuzzling. I followed the narration—the soft female voice speaking soothingly again, with a story-telling tone of reassurance [brackets cue an immanent narrative]:

*“Daybreak, northwestern Montana, eighty million years ago... “*

[This is a ‘day in the life’ moment, in ancient “Montana”, Blackfoot lands no longer noted ...]

*“It’s the start of the Maiasaur nesting season ...”*

[This is iconic Maiasaur time, a time of reproduction, nesting season...]

*“By the 1000s the adults begin preparing...Eggs need constant guarding...”*

[Parenting in this densely populated neighbourhood has its stresses—unseen predators, the “terror of many plant-eaters” may lurk here, looking for eggs...]

*“Newly hatched babies, helpless at birth, will triple in size in two months...”*

[Babies are vulnerable too, but (scientific knowledge shows) they grow quickly...]

*“Long after the Maiasaur’s extinction, their stories have been recorded in fossils...”*

[Museums collect fossils, which are kept so “stories” like this may be properly known]

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<sup>42</sup> Wilford 1986; Desmond 1977; Norman 1991; Bakker’s Heresies; Horner 1988; and Horner 1987.

<sup>43</sup> As a result of using the same animation technique, the visage is reminiscent of the stop-motion style of monsters and dinosaurs from Willis O’Brien and Ray Harryhausen films of the 1930s through the 1960s. See discussion in Ch.5, “Recirculating Scenarios”.



*“Scientists will name them the Maiasaura, “the good mother lizard”....”*

[Respected authorities name the dinosaur in accord with the properly known stories]

Though no direct statement as to gender had been given—and recalling the nickname “Henrietta”—I was increasingly persuaded that the adult presented was significantly a ‘she’—a good, caring mother. The signs collide: scientific name, kindly female narration, gentle sounds, the single adult in the video image, domesticity. Child-rearing appears as normal, female work in this bygone natural world.

Visitors to the exhibit commonly read this sort of normative gender assignment, but often reworked the emphasis in surprising ways. Three very enthusiastic young girls<sup>44</sup>—who had particularly cued into the pettable, pewter Maiasaur—revealed how readily they could interpret and refashion the model and the exhibit narrative into complex scenarios,

elaborating the gendered logics of the display in novel ways:

BN: *What did you think of the model when you touched it?*

Kyla: *It had spikes on the back, right? Little spikes.*

Allison: *I think so.*

BN: *Now, what kind of dinosaur was it? Do you know?*

Kyla: *It wasn’t a Maiasaur.*

BN: *You don’t think so?*

[all say “no”]

BN: *And how big was it, approximately? Can you show with your hands?*

Kyla: *It was about....it was this long. This tall.*

Allison: *It wasn’t very big.*

BN: *A little smaller than each of you...then, right? Smaller than you guys. Did you think it was a model of a grown-up dinosaur, or a ...*

Kyla: [somewhat inaudibly] *I think it was a dad dinosaur.*

BN: *You think it was a dead dinosaur?*

Kyla: *No, a dad! Because it had little spikes on the back. And I didn’t see spikes on the back of the mom.*

BN: *Okay. And if you see spikes, why does that mean it might be a dad?*

Kyla: *Because, for two reasons. First, I think, ‘cause I didn’t see any on the mom one. And second, because I think the dad has to protect the mom and the babies.*

Allison: *But what if the dad is not there?*

Kyla: *I don’t know.*

Allison: *I think that it is for both of them.*

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<sup>44</sup> The ages of the three girls, respectively, were Kyla and Allison-7 years, Emma-5 years.



BN: ...*oh, so you think that spikes would be on both of them?*

Allison: *Yeah.*

BN: *What do they have to protect the mom and the babies from?*

Kyla: *Enemies.*

Emma: *The enemies.*

BN: [turning to address Emma] *What were you going to say before you heard “enemies”?*

Emma: *Tyrannosaurus rex.*

BN: *Tyrannosaurus rex is the enemy?*

Kyla: *Yeah, meat eaters.*<sup>45</sup>

I thought to myself, “all of this, from the simple touch of a pewter dinosaur?” Of course, much more was at play—the entire exhibit, its narrative, the dialogic engagement of the children. Still, the materialized phantasms of the nexus came through, loudly: families, domesticity, gendering, good plant-eaters, enemy meat-eaters, complex ideas about dinosaurs as opposed to a more exclusive sense of “vicious killers” alone. These girls refigured and recombined the display information with their own imagining. Indeed, they contrasted the ‘goodness’ of the Maiasaur with that of the T. rex, as: “*Tyrannosaurus rex* eats his babies.” All the same, the gender logics of the Maiasaur displays appeared to align generally with their senses of heterosexual gender role assignment. For example, there had to be dads and moms apparently. The dads had to protect moms with babies, and spiky backs somehow helped to do that. The enemy?—predictably enough, was Osborn’s “king of the tyrants”.

A second account came to me from a fellow anthropologist in the Toronto area, Ken Little. Little’s son Will, at age 8, had long been a dinosaur fanatic, and had visited the ROM’s Maiasaur exhibit in recent months. Over breakfast one morning, Will began to expound on the behavioural complexities of *Maiasaura*:

Will: *With the Maiasaura dinosaurs, the mommy dinosaur stays at the nest and takes care of the babies. The daddy dinosaurs go out and kill!*

Ken. *But Will, you know that the Maiasaurs were all plant-eaters...they didn’t kill other animals. And didn’t the boy dinosaurs take care of the babies too?*

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<sup>45</sup> Visitor interviews, July 26, 1998.





Will: *Yeah, okay, the daddy took care of the babies too, but the daddy still had to go out and get the food.*

Ken: *Wait a minute, Will, think about your mom and me—that isn't the way it works for us—we both go out to work so we can get food.*

Will says. *Yeah!...that's because you're people. Maiasaurs are dinosaurs!*

Will had clearly outsmarted his father, the learned cultural anthropologist, who all too quickly presumed that Will was simply mirroring the daily life of their domestic human world and that of *Maiasaura* dinosaurs. Will, however, knew how to combine biology and cultural anthropology, recognizing that while dinosaurs and humans may have some similarities, there is something in the mixing of natures and cultures that makes them distinct.<sup>46</sup> Will's view describes a human/non-human order, and one that ascribes sex roles in slightly differential ways to people versus dinosaurs. What circulates here, all the same, is a particular sense of gendered family relations.

The regularity of these sorts of children's accounts, however much adult companions might have attempted to intervene and set things straight (as it were), still largely reified mainstream gender logics. The shift to "sophisticated ways of thinking about dinosaurs" in the final analysis, had been produced as Henson had predicted. His imagining of a hegemonic sensibility among museum visitors corresponded quite well with the responses I encountered. Here indeed was Henson's sense of the gendered opposition between masculinized vicious killer dinosaurs and feminized friendly maternalist dinosaurs.

Henson knew, however, that the question of interpreting maternal care—or even of parental care in the ungendered sense—in the case of *Maiasaura* was scientifically contested. For curator Henson, that uncertainty should not be allowed to undermine the utility of using

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<sup>46</sup> Ken Little passed on this tale to me in February of 1998, just a couple of days after the exchange with Will had taken place. I reproduce the story here, with Ken Little's permission, and I hope, with the blessing of his son Will, with whom I will be very careful if I ever end up debating either dinosaur or human behaviour! At the time, Ken Little was professor and Chair of the Department of Anthropology at York University, Toronto.



this dinosaur as an ally for shifting public senses of dinosaurian biological complexity. He told me:

*...The key reason behind its exhibit potential was that Maiasaur was, in a way, a catalyst in our new thinking about dinosaurs...Maiasaura was a dinosaur where the majority of researchers believe you actually have the first actual tangible evidence of paternal or maternal or whatever...parental care in dinosaurs. Sort of taking them away from our standard view that reptilian dinosaurs wouldn't do this, whereas a more bird-like or mammal-like dinosaur would. Admittedly, "a", a naive dichotomy—some reptiles actually do look after their young—and "b", an intangible one, because, to this day it's not really clear how good the evidence of parental care in Maiasaur actually is...some people have actually expressed serious doubts about the classical scenario as proposed by Jack Horner.*

Yet, Horner's classical scenario would carry this exhibition. One could only ponder what might have happened if such a contestation had been displayed. Could these children have still transformed the creatures into the domestic, heterosexual figures, of feminized, maternalized herbivorous dinosaurs bringing up babies, of boy dinosaurs always wary of the marauding meat-eater, or if not that, then out on the prowl for meat themselves?

Again, the enrollment—and reification—of gendered sensibilities by science was what would prevail. Predicting audience responsiveness yet again, Curator Henson insisted that presenting scientific debates and uncertainties simply would not work as good public communication:

*...We've tried it, time and again, in lectures, in exhibits,...People are not satisfied with it...People come because people have been conditioned over time to think that science works like religion...and really conveys truths. And, when science fails to deliver...since most people don't understand science in the first place...it's like "what's the whole point—we don't understand these people anyway, so now they don't even tell us truth, why don't we just go and burn them all?" (chuckling)...*

Notwithstanding Henson's recognition here that the Horner scenario was contingent, this exhibit would, in his terms, present it as "truth". This intention was fulfilled, as a college geology student told me:

*Andrea: We watched that little film ... and it talked about the habits of the dinosaur, and I thought "I didn't even know we knew that stuff". The last time I was here I was a kid, and I think we only knew 15 dinosaurs.*



BN: *So it was quite foreign to you to find out about a lifestyle*

Andrea: *Um-hum [enthusiastically]. I didn't even know that they knew the living habits.*<sup>47</sup>

The result, stated once more: the nexus of Mesozoic nature, would be selectively configured in this legitimate public cultural materializations in order to align expected audience type-casting of dinosaurs with the project of advancing Henson's "more sophisticated way of thinking about dinosaurs".

### The Interactivity of Horner's "Classic Scenario"

The "classic scenario" of Horner was a remarkably potent articulating device, in the sense that it was the right sort of story to enlist populist stereotypes of binary gender and binary dinosaur kinds, all of which Henson had intended. Such a scenario aligns with genres of children's story-telling and conventions of popular fiction and cinema, easily conjuring the Hollywood promulgated accounts of babies separated from mothers (as in *The Land Before Time*) and absent but often heroic fathers. I recalled again how the missing animated herds of Maiasaurs which Jennifer Ross had so lamented, might at least have given a sense of multitudinous sociality to counteract the replaying of such reified stories of dyadic domestic life.

The conviction that such familial story-telling could perform effective <science+audience> articulations was equally held by Exhibit Programming staff of the ROM. One of the interpretive planners had co-authored a visitor research study entitled: "The Effects of Technology-Based Devices at the Royal Ontario Museum: Observations and Visitors Perceptions".<sup>48</sup> The study resulted in a conditional endorsement of the use of

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<sup>47</sup> Visitor interviews, July 24, 1998.

<sup>48</sup> Title of draft of paper by C. Lockett, L. Menna, and E. Walker (1998).





interactive media. The “Maiasaur Family” video was classified as a prime case of a “Didactic Presentation”, which they defined as:

*A technology-based application (audio, visual, audio-visual), which presents conceptual information that is relevant to the exhibit topic, in a factual, straightforward manner.*

The Maiasaur Family video was, therefore, seen to be “factual, straightforward”. In the context of “technology-based application”, the video content was factualized. The visitor research study went on in very precise terms to present evidence on how the factual information could be made to be “relevant”:

*Nearly half of the visitors who used the “Maiasaur Family” A.V. reported that they greatly enjoyed its story line, which dealt with the raising of the young. In particular, this seemed to have tremendous appeal to family audiences, who often commented that they were able to relate this theme to their own lived lives...Therefore, in planning the design of such devices, practitioners should place as much emphasis on the story line or the narrative content as is given to its technologically dazzling elements.*

Lockett’s prescription for interactive displays was simple enough: use them not so much to dazzle, but rather to cause relations, to articulate. The way to do this is was by emphasizing “story-line or the narrative content.” Her proof: the “Maiasaur Family” A.V.

Interpolating Lockett’s empirical results with all that I have been presenting, a long sequence of oddly connected articulations can be reconstructed: the fossil eggs and bones of baby dinosaurs in Montana; Horner’s nesting scenario; the CBS *Dinosaurs!* documentary; the find of what would later be ROM #44770 by Sherri Flamand; the collection of “Henrietta” by Bearpaw Palaeontological, Inc., and its subsequent sale to the ROM; the enlisting of matter from this history by Henson; the imagining of “family” audiences; the translations into an exhibit; the selective foregrounding and embedding of Maiasaur as the family dinosaur; the engagement by visitors with these elements as an interactive story of mothering, babies, touchability—the particularly familiar, familial life and times of a dinosaur.

ROM #44770 had brought this history of “good mother” inscriptions and storylines along with it, stories grounded in the previous scientific accomplishments of palaeontologist



Jack Horner. Attached to the specimen as well was the remediated science of *Maiasaura* found in popular media culture, including the CBS *Dinosaurs!* series—the politics of that production incorporated within the “Maiasaur Family” video element in the resulting presentation. Through all of this, it was the malleable phantasy of “family” which had been circulating, coming to be reperformed in the reconfigured Mesozoic nexus. The visitor, moved through the exhibit as a “family”, interacted as a “family”, and encountered a dinosaur “family”. The audience targeted, was the audience produced. In many regards, that audience lived, literally, in *Maiasaura*’s world.

The ROM acquisition of a *Maiasaura* specimen, “the best specimen of its kind”, had enabled the enlisting all these translations. Moreover, a highly regarded research collection had been expanded. The ROM’s outstanding collection of Hadrosaurian dinosaurs now included the “Good Mother Lizard”, ROM #44770. The \$250,000 paid was more than an investment in a fine, unstudied specimen. It was also an investment in the articulation of cultured science with the ROM’s key audience: middle and upper income Canadian and tourist consumer “families” who have choices of how to spend their leisure time and money. The ROM had advanced its position, both as a major research museum, and as a competitor in the highly competitive leisure industry.



To close this chapter, I turn to the final component of the “Cretaceous Period” section. To the right of the “Visit to the Cretaceous” console was a small glass-fronted diorama or “habitat group”.<sup>49</sup> Depicted here on the flat backdrop illustration was a clearing with tall deciduous trees in the background. A standing mount of a baby *Maiasaur* skeleton was frozen in the foreground space of the inset display case. It was about the same size as the silver *Maiasaur* at the entrance. Two sections of text at the foot of the skeleton read:

*Hatchling Maiasaur.*

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<sup>49</sup> Wonders 1993:12.



*The legs of baby Maiasaurs were not strong enough for them to run around and find their own food. However the wear on their teeth shows that they were eating plants which must have been fed to them by adults.*

### ***Maiasaur Nests.***

*Vast Dinosaur nesting grounds were found in the early 1980's in northwestern Montana. Each nest held as many as 25 eggs. The hatchlings evidently stayed at the nest for several months, like baby birds.*

The implosion of scientific authorization, nurturance, babies, and parenting takes place yet again. The backdrop image is in proper perspective scale to give the illusion of scenic continuity with the skeletal form in front. It shows an adult with a rather spindly baby hanging gently from her beak—in the manner of a mother cat with a kitten. She lifts the baby over a nest with what I can't help now but recognize as 'her litter' of babies. I interviewed visitor Amy, 21, as she was leaving the exhibit. She told me she didn't know the meaning of the name "Maiasaura". I told her it meant "good mother lizard", to which she responded:

*Ahhhh! So, is that why it said "raising a family...it's a good place to raise a family"...or something like that?*

Amy understood.





### Technotheatrics Maiasaur's World, Disney's World?

*Spectacle by itself is Disneyfication....If you can put it into context, so that there's meaningful ideas and authority behind it, then you take it to the next level... To me that's the heart of it... if you can do that, that's admirable in a museum...*

—Walter Tomasenko, former Manager, Digital Media Services, and Creative Director for the Maiasaur Project

*The ROM staff is well aware that, for all the science supporting the computer graphics, “no one really knows what the Maiasaur looks like or how it moves,” admits Walter Tomasenko, creative director of the ROM's Digital Media Services. Consequently, notices to that effect will accompany exhibits that rely on “reasonable inferences”. Henson, however, believed that any issue of interpretive liberties is overshadowed by the life multimedia injects into the fossils. “The animations give people a feel of what the living breathing animal would have looked like, which is a very difficult conceptual transition for the lay person to make,” he says. Tomasenko reaches for a more theatrical comparison. “It's basically like Jurassic Park,” he says, “except we have to be accurate first and entertaining second.”<sup>1</sup>*

—J. Pachner, Reporter, *Electronic Link*.

The latter of the two quotes above speaks of the relations between multimedia production and scientific knowledge in the Maiasaur Project—the pivotal issue of this chapter. It is taken from an article in a specialty magazine designed for the North American computer graphics industry. Tomasenko, the media producer, points out “no one really knows what the Maiasaur looks like or how it moves”. Henson the scientist does not directly deny this point, but instead implies that while the “lay person” has difficulty in making the visionary transition from the fossils, there are, by default, those who are properly equipped to

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<sup>1</sup> Pachner 1995:47.



minimize this difficulty — scientists with their techniques. What lies between the finished vision and the specimen, then, is this rather large terrain of contested imaginings, and of multiple techniques for making this “difficult conceptual transition”, a transition to something which, as Tomasenکو says, “no one really knows”. As discussed at length in previous chapters, here the malleable space of phantasmatic / systematic otherworld-making between the specimen and the spectacle is made apparent yet again.

The noted statements of the Maiasaur Project’s media producer and its curator are simultaneously remarkably conflicting and yet extremely complementary positions on the status of knowing, and of the relation between the materiality of fossils and the virtuality of mediated visions. The question is, which comes first? Do you start with the spectacle, and add the context of the fossils as Tomasenکو suggests in the first quote above? Or do you start with the fossils and build the context around them? Developing an answer to this conundrum has long vexed museums historically, and has become a source of tremendous tension and anxiety.

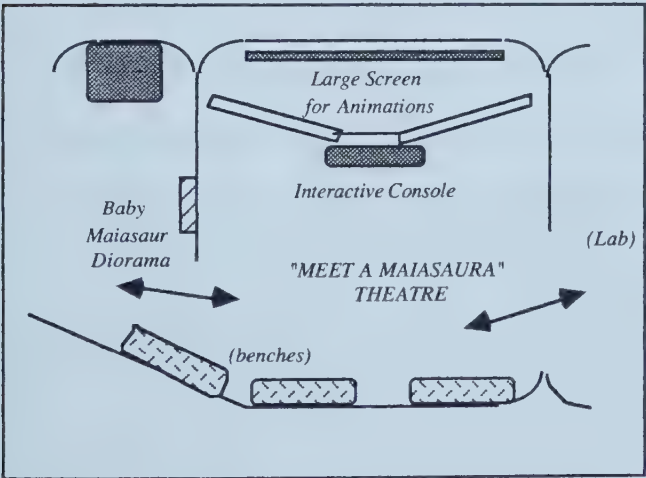
This chapter discusses the most explicit example of spectacle and virtual creation work from the Maiasaur Project, the “Meet a Maiasaur” interactive computer animation theatre, and some of the vexing and very political questions of its effectiveness as a display, and its effect on the shifting status of the museum itself. I also consider how it worked in relation to the other components of the exhibit, in particular the complexities faced in building a relation between the theatre’s “living breathing environment” and the fossils and evidence from which those visions were meant to be fashioned. This discussion completes my critical walk-through of the exhibition.

The chapter is organized into four parts: 1 — “*A Living Breathing Environment*” which continues the critical walk-through started in the preceding chapter; 2 — “*An Exhibit Like No Exhibit You’ve Seen Before*” which contours aspects of how the Meet a Maiasaur theatre was developed, and how it came more into alignment with marketing and corporate interests

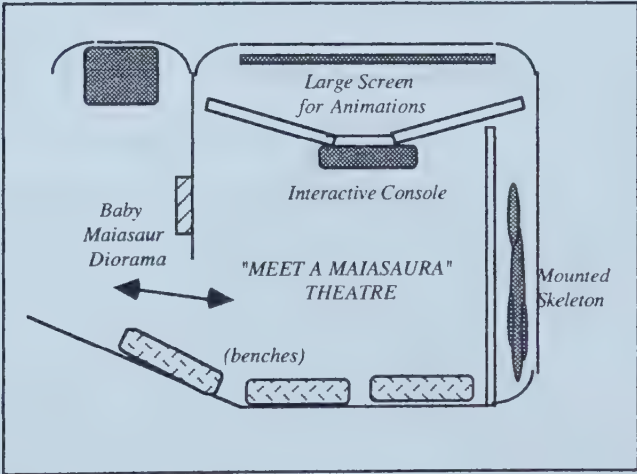


in contrast to the other components of the exhibit; and 3—*On “Disneyfication”* where the political points about the shifting status of museums is discussed. Finally, as a means of resolving the larger issues signaled in this ethnographic account, the fourth and closing discussion of the chapter, *Maiasaur as Fetish*, draws two radically different, yet intimately related elements together—the now familiar little pewter Maiasaur and the Maiasaur Project’s position in the history of cinematic dinosaur spectacle.

As in the preceding chapter, I have drawn some of my ethnographic accounts of visitor engagements with the exhibit into the analysis in order to suggest whether and how visitors were aligning their knowledges with what was around them. The critical description resumes where I left off in the previous chapter, that is moving from “The Cretaceous Period” gallery, into the highlighted interactive segment of the exhibition, the “Meet a Maiasaur” theatre. Contrasting sketches of the space as it was laid out over two different time periods are shown below.



May '95 to May '98



May '98 to September '98

Diagrams 7 & 8: Shifting Layouts of the 'Meet a Maiasaur Theatre' Space





## “A Living Breathing Environment”: The “Meet a Maiasaur Animation Theatre”

*To a generation weaned on interactivity and rapid-fire visual images, specimens in glass cases can be downright boring. So the museum's digital media services are using the tools of multimedia and interactivity to bring an 80-million-year-old Maiasaur to life.<sup>2</sup>*

Peering around the corner now, and hearing occasional, deep, drumming sounds, animal-like breathing, and the shrill cadences and exclamations of excited children, I see ahead of me a mounted skeleton of what must be the *Maiasaura* specimen.<sup>3</sup> This is what vertebrate palaeontology collections manager, Simon Kilgour, had told me is ROM #44770—what this exhibit is supposed to be all about. To the left, a huge animated “family” of Maiasaur’s—two adults with a baby trailing behind—rushes headlong through a woodland.

The connection between the parenting stories from the previous space, and the imagery in this space, was fortuitous in this instance. If one rounded the corner at another moment, a very different set of actions might be playing. The 16 selections of animations offered show *Maiasaura* in eight walking or running sequences, four sequences of what are called “behaviours” (e.g. drinking, making sound and appearing alert), and four others of *Maiasaura* in a sequoia environment. [see Figs. 39 and 40, pages following]<sup>4</sup> The majority of animations show a solitary Maiasaur. The button array is as it was in the “Visit to the

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<sup>2</sup> Sheila Cameron, CityTV reporter, CityTV production MediaTelevision feature on the Maiasaur Project exhibition (First broadcast date: July 25, 1995).

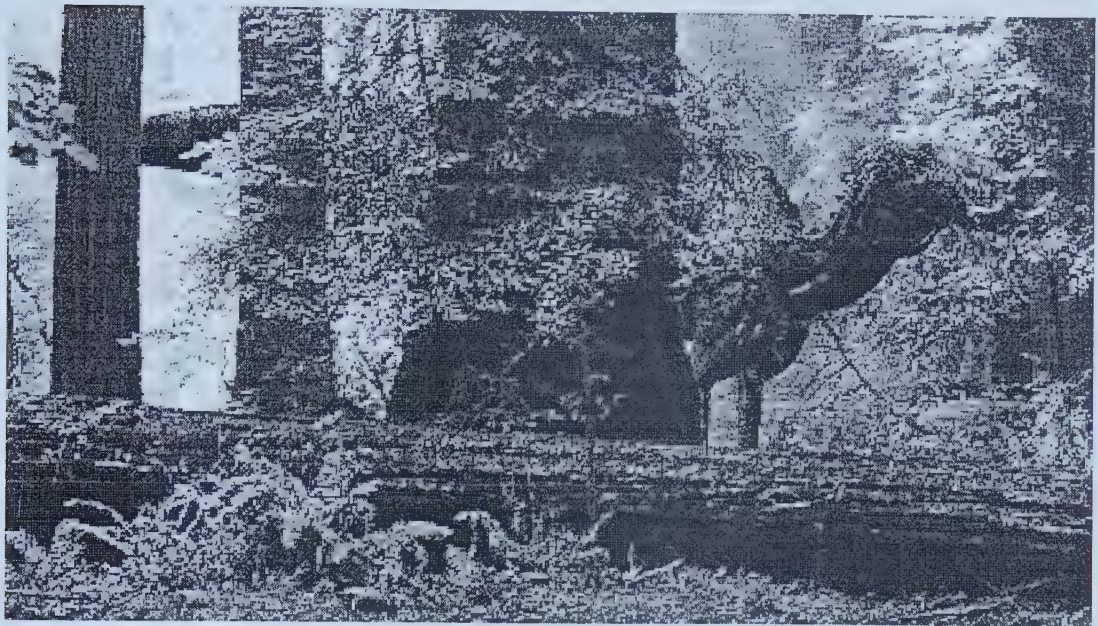
<sup>3</sup> This description continues in the mode of the critical descriptions in the previous chapter. A single walk through is presented with interjections from interviews, quotes, commentaries, etc. As mentioned previously, the exhibit’s layout and elements shifted over the course of the intended run. From May 1995 to June 1997, the lab was operating in the third section of the exhibit. From July 1997 to May 1998, the mounted skeleton of the specimen replaced the lab in the third section. From May 1998 to September 1998, in order to accommodate space needs for “A Grand Design” exhibit from the Victoria and Albert Museum in London, the third space was completely overtaken, with the skeleton being moved into the Meet a Maiasaur Theatre.

<sup>4</sup> Figures 39 and 40, Images of “Meet a Maiasaur” computer graphics; Images reproduced with permission of the Royal Ontario Museum.





**Figure 39, Figure 40** (p. 294a)  
**Computer Graphics Maiasaur from "Meet a Maiasaur Theatre"**  
Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.







Cretaceous” interactive—a series of backlit plastic buttons with still-photo transparencies showing a single frame of what is to be seen.

Knowing that these images are a technically and imaginatively reconstructed form of the animal, I’m intrigued by how they are made to appear, move, and sound. The colouring is greenish, with grading bands of yellow—a sort of camouflage, I wonder? When walking, the Maiasaur moves on all four legs, when running it lifts up onto its hind legs, tucking the front limbs in close to its body. The drum of footfalls is used in all the sequences of the animal moving. Though large and swift, this creature did not seem at all threatening. One child remarked on Maiasaur’s temperament on the basis of these animations:

*It was gentle, it wouldn't like fight back, it would run instead, because one of the videos you see it running really fast.*

I scanned the images for signs that were supposed to be of scientific interest, or which had some connection to Henson's original Curatorial Statement.<sup>5</sup> Interestingly, one of the few special features of the new specimen ROM #44770 is a horny beak-like structure, which was also mentioned in the original curatorial statement, yet there is no visible sign of the structure. There was, however, the feature which several children who had petted the pewter Maiasaur had mentioned to me based on their touching of the model—a fairly heavy-looking flap of skin under the neck, the dewlap. It had not struck me until visiting children mentioned this feature that the form of the model and those in the animations shared much in common: the posture, the sense of weight of the animal, the skin textures.

Then I was reminded of Andreas Henson’s points on this, “just to give a little bit of a feel of how this animal looked”, but then also, “we don’t know the colour, but we know a lot of other things”, so he notes, “every example of dinosaur skin impression ever found...is always made up of these polygonous scales...”. Here indeed were indications of these scales. But again, I only knew to look for these, first, because of my conversations with

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<sup>5</sup> See Chapter 10 discussion of “Curatorial Statement”.





Henson or reading his curatorial statement, or second—and this was very intriguing—because children had told me of the skin texture several times in interviews! There was no textual or audio-visual information drawing my attention to these things—but children combining touch and sight had indeed made some such connections.

In some instances the computer animated animals moved across what effectively looked like spot-lit spaces—practically vaudevillian. One sequence showed the head leaning to the whitened “pool” of light, apparently drinking—I heard one child exclaim, “it’s drinking milk!”. The Maiasaur is seen as well snapping its head up quickly, looking about pensively, its nostrils then distending in an unusual manner. These were all only limited ranges of motion or ‘behaviour’. I had been told that the visual animation of every little gesture had involved a complex of decisions and a great deal of technological manipulation and labour. For most of the visitors I watched here, such technical matters were to be left unknown. This was a show of finished visions, here in a museum, along with all the other technical, showcase, and specimen trappings one would expect in a museum.

Jennifer Ross had explained to me just how much labour there was behind all this digitally created animation, suggesting as well the resources that had to be pulled together: *...We needed something called a “rendering farm”...It’s not like regular film animation where you can finish your animation two months ahead of time and do all your editing and sound mix, and then run it. We had to finish this thing EIGHT months ahead of time. Because it then all had to get rendered off of the hard drive in the computer onto some digital video. There may be another step in there. This thing, “rendering”, is transferring digital information. It can take months. It became clear as panic built and the deadline got closer —this has nothing to do with your public perception of dinosaurs, but it is interesting— they were going to need a lot of help. Walter had good contacts at Alias and got them to donate software and time—this all would have cost us a fortune. We had computers and people at the Science Centre, at the U of T, at Sheridan college. Everybody was rendering for us. There was A LOT of nail biting going on.*



Jennifer's comment, "this has nothing to do with your public perception of dinosaurs" is correct insofar as the public would not see the "panic" and "nail biting", nor the huge "rendering farm". But, as I had learned already, in terms of resources committed, schedules and budgets being pushed to their limits, visual elements being dropped, communication objectives being compromised, the creation of these images did indeed have much to do with "the public perception of dinosaurs."

The budget and time constraints even affected the animations which would be presented, some of which were unfinished. In these, a "wire frame" computer graphic form of the dinosaur moves through the landscape, or across the black screen-space, giving a sense of technical wizardry, a sense of what lies behind this illusion of animation.<sup>6</sup> The intention had been to replace these unfinished renderings, but clearly some remained, without any explanation offered in the exhibition. The brilliant blue lines making up the dinosaur form glowed with computer fluorescence on the screen in this very dark theatre. Strange swirling cross-marks, presumably guide points associated with technical aspects of graphics production, hovered in proximity to the wire frame animal as it moved. The wire frame figure was set against a photographically exact forest background, and as it moved, just as with the finished fleshed-out animations, each footfall was audible as a deep drum beat. There might as readily be a wire-frame or a fully fleshed-out *Maiasaur* before the viewer. Sounds of breathing could be heard. The wire-frame head moved to the ground, there was the sound of a shuffle of leaves and shrubs, a cropping noise, the head lifted, a low grumble and a guttural noise could be heard as the ghostly, graphical creature swallowed the vegetation. [see Fig. 41, page following]<sup>7</sup>

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<sup>6</sup> The wireframe lines were retained in the "transmorphic" *Maiasaur* used in many of the graphics produced for way-finding and for promotional materials. cf. Fig. 24 in Chapter 9.

<sup>7</sup> Figure 41, "Meet a *Maiasaur*" Theatre with blurred wireframe image on screen, photographed by Brian Boyle; Photo reproduced with permission of the Royal Ontario Museum.



Referring to the wireframe animations, a fourteen year old girl, Sarah, who visited the display showed how easy it was for her to incorporate these into a set of everyday logics: *There was one exhibit where they had a sort of a claymation.<sup>8</sup> That was okay, but I liked [in the other one] the way they showed the running, and using the structural, skeleton process to figure out how they would have run....they were showing the structure inside it at the same time. You could just tell it was much more professionally done. It looked much more realistic....[it was like] Jurassic Park....*

Surprisingly, the wireframes caused no confusion for Sarah. She took them as intentional structures, skeletons which somehow aided in the determination of running motions. Or perhaps she also had understood the wireframe lines as true elements of the organic structure of the animal, as though it were some sort of cyborg. Once more, imaginative infilling of that which was missing had allowed her to create an individual, situated coherence out of the display experience. In what was by now becoming quite routine in my conversations, the reference standard (in her case, the “realism” standard) of *Jurassic Park* was summoned yet again—even though *Jurassic Park* is never referenced directly in the exhibit. Precisely how it was like *Jurassic Park* was unstated, but the parallel she drew suggests it is that of revealing the process of production—or animation, of film, of organic dinosaurian life itself. Her ability to sort out or mix visual indicators of the digital and the organic was like second nature.

Returning to the imagery once more, the screen blacks out after each 20- or 30- second sequence. The baseline, background music for the title-rock-skull transformation seen in the “Visit to the Cretaceous” interactive returns, an electric piano or computer generated music playing sonorously, again, as if to suggest an unfolding, a revelation. The tones rise and fall ending with a gentle but deliberate high note sustained, as a kind of pinnacle point, an exclamation. The imagery of transformation rolls visually on the screen, then the text emerging onto the face of the rock, then inside the outlined rock face, the ghosting sequence,

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<sup>8</sup> Claymation is an animation technique which makes use of clay models. Here she was referring to the “Visit to the Cretaceous” videos showing *Maiasaur* nesting.





the skull, the ‘face’ of *Maiasaura*. As I pay closer attention, I find that the beak-structure appears to be depicted on the transforming skull, and then it is fleshed over. And now, as well, an extra text element is ghosted onto this giant screen: the sponsorship credits, here in the boldest place of any sponsorship credit in the entire museum:

Sponsored by Padullo Integrated Inc.

Animation software donated by Alias

Assistance with animation rendering: Centennial College, the Bell Centre for Creative Communications, the Ontario Science Centre, Sheridan College Faculty of Arts

A graphic panel on the wall near the entryway to the exhibit had presented sponsor information as well. I did wonder whether some visitors might read these texts and think about this. My attention typically numbs to such sponsor credits when viewing museum exhibits, and I suspected this would be the case with most people visiting the display. Indeed, in spite of the presence of these elements, even Phil Thomm the preparator who had spent most of two years working in the exhibition laboratory, and who passed by these elements many times, told me he had no idea who the sponsors had been. I assumed that this was presented, not so much for the public, but for the sponsors.

As the sponsor list faded back, once more, the default soundscape looped back seamlessly on itself, an imperceptible repetition—until someone touched the button, and another animation appeared: a spotlighted *Maiasaur* walks slowly across a darkened stage-like space. The scale of things on this screen was even greater than it was in the Visit to the Cretaceous videos, more suggestive now of something magical, transformational, the power of the gesture to conjure giant, hidden, mysteries—this is about bringing the dead to life. I thought back to some comments which Andreas Henson had made about how he felt many people expected science and scientists to perform acts tantamount to spirit-world mediation:

*It's almost a priestly function...this person who has revealed knowledge and communicates truth to the general public. Well frankly, that's not how science works.*

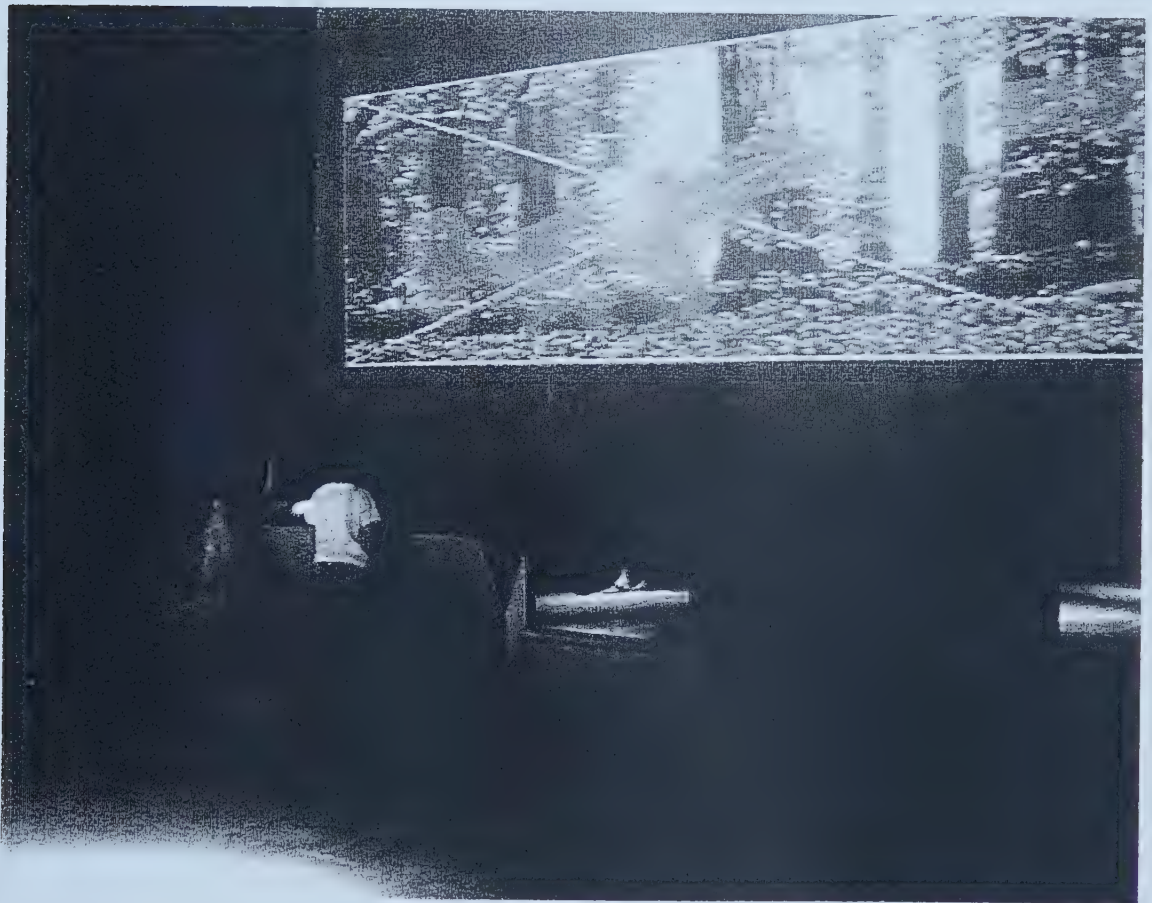


**Figure 41** (p. 299a)

**"Meet a Maiasaur Theatre" with Animations**

Computer graphics wire-frame dinosaur on-screen; n.b. wireframe blurred here

Source: Royal Ontario Museum, Photograph courtesy of the Royal Ontario Museum, © ROM.





The exhibit had not to this point remedied the sort of potential mis-reading of which Henson spoke, but seemed like it could only contribute more to it.

For the moment, at least, the space of museum-located scientific imagining was yielding to a sense of mystical revelation and resurrection. The rib-like structures which had been placed at the base of the showcases in the Cretaceous gallery, were repeated here, now elevated to the walls—vague significations that the visitor was supposed to be, somehow, within the beast itself. Walter Tomasenko's terms of producing a "living, breathing environment", which literally conflated the animalian with the spatial locale took on greater meaning. With the harmonics playing, the visitors standing in the darkened area appeared to wait for something momentous to be imparted.

Yet at other moments, the space also operated like the dark space of a video game parlor, though on a much larger scale and with a more refined and spartan aesthetic. Here, however, the animated beings on the game screen dwarfed the player at the console. Two 11-year old boys, Simon and Ben, on exiting the gallery, told me how things worked in there:

*...everybody's always racing to get to the button first...I got there first and then he got a bunch then I got a bunch... and then, like six other people.<sup>9</sup>*

Still different sorts of interactions also took place. In another moment, a man sitting on a bench at the back of this room called out to a girl, about seven years old, who was standing at the front, telling her to compare the skeleton beside her to the graphic animations being projected. She was about to press a button at the console, and the man called, "Hey, Denise...Energize!". Denise, standing next to a younger boy, apparently her brother, pressed the button and a running Maiasaur appeared on the screen. She turned round to her father, "I picked it!" Other children began to crowd around Denise and the boy at the

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<sup>9</sup> Visitor Interview, June 14, 1998.





console. After looking up at the creature running before his eyes in the dark space, the boy with Denise, turned back to the man “Dad! It’s like a T. rex!”.

Though absent in the exhibit, T. rex re-entered the scenario again and again through so many of the visitors’ imaginative encounters. Several visitors had told me they thought that somewhere in the exhibit, a T. rex had been presented—some thought it was the model, some said the big-screen animations, and several saw it in the mounted skeleton. One woman in her 40s visiting from the US, Ramona Asuncion, explained how utterly flummoxed she was by the visions around her:

*It's really kind of weird, it looks like a Tyrannosaurus rex, it has more that build when you look at it ...but they were meat eating..... It's the body...it's the head...the body is...I'm saying that only because, when you get to the head, the head looks different, the head looks more like ah...the ah ...Brontosaurus...like that with the eye socket, I mean with the eyes, the kindlier eyes, you know, whereas ...the remainder of the body is like that of a T. rex, I mean that's what it strikes me as being...I thought it was surprising when it said it was a plant eater ...I'm looking at those little tiny forepaws, I mean they weren't tiny but they're smaller than the hindquarters and that's typical of what you would see on some of the meat eating dinosaurs...at least that's how it strikes me, from what I've seen...*<sup>10</sup>

I had a strange feeling that Ramona was mired utterly between her expectations of seeing a T. rex and the differing saurian form before her. Was she experiencing the early stages of the conceptual shift which the curator had anticipated, from the stereotype of the vicious killer dinosaur displaced by the friendly plant-eater? Was she beginning to think in “a more sophisticated way about dinosaurs”. She just seemed confused to me.

Such mixing of characteristics in the way visitors responded to the “kindlier” plant-eating Maiasaur envisioned here was not restricted, however, to anatomical points as had been the case with Ramona. Fourteen year old Katie also used *Tyrannosaurus* as a comparative for

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<sup>10</sup> Visitor interview, July 20, 1998.



discussing dinosaur behaviour, as I discovered when asking her if she thought *Maiaasaura*, “good mother lizard”, was an appropriate name for the dinosaur in this display:

*Katie: Yeah, it is - but I don't think for just that dinosaur. Because, even the T. rex, they do take care of their young to some extent. So it is not something which is unique to that dinosaur.*

*BN: Yeah - do most people know that the T. rex take care of their young?*

*Katie: No...because it just kind of looks like a savage monster, that will eat anything. So it is hard to picture it having a nest, and nuzzling babies, and stuff.*

*BN: Where did you first find out about *Maiaasaur*?*

*Katie: Here.*

In the theatre, once more, the boy had swung back to the console, vying to hit the next button before other children could. Listening to the lumbering rhythm of the footfalls, he swayed along with the dinosaur, lifting and dropping his feet on the spot in mimetic sympathy—a mimicry I witnessed children performing many times in the theatre. The other children began to press in even more. The man stood quickly, called, and clapped his hands together, “okay you guys...let’s go”. They walked off quickly out of the theatre space, past the showcases of skulls and the entry screens without as much as a glance, ambling toward other awaiting exhibit experiences.

These interactions of a “family” group engaging the exhibit highlight some of the sorts of actions that were commonly repeated in this exhibit space. The most recurrent pattern was that children would rush to the console, begin almost automatically to press buttons—the way that small children rush to press elevator buttons, or older children aggressively bang at video game consoles—while the accompanying adults stand or sit at the back of the generally open space watching or conversing with the children interacting at the console and screen. A complex of social interactions was activated, the interactions of one person with the display prompting novel and imaginative interactions with others in the group.

There were several actors (and actants) at play here: the computer graphics animation sequence on the screen the people at the console viewing, the console with its selection



array, and the people standing back and watching both the images and those interacting with the console, who also look back to the folks (often adults) behind for assurance, conversation, dialogue. Those were among the regular and regulating features of the Meet a Maiasaur theatre. The exhibit apparatus itself, while conveying a particular configuration of one dinosaur, was also effecting complicated social play. In that play visitors would draw upon and insert knowledges from elsewhere—the theatre could as readily conjure the content of a video game, a “beam me up” scenario from Star Trek, the behavioural logics from Hollywood films, previous notions about dinosaur icons like *Tyrannosaurus*, etc. In moments of adult-child communication, the adult would sometimes insert moral points about human life—Maiasaur typically becoming a natural example of “good mothering”.

Looking back and forth between the skeleton and the animated imagery was also a recurrent form of engagement here. Amy, a 21 year old remarked:

*It was really neat, the sound effects and stuff. Because I was standing there looking at the skull, and hearing this stuff from the movie, that was fun. Seeing the similarities. I really liked that.*

In this comparative play between skeleton and animation, visitors would also imagine and visualize. Renée Akthar, 24, explained to me that she had been captivated by the skeletal mount with its skull displayed directly adjacent to the giant screen:

*...it just helps you visualize like how big dinosaurs are or were, or what they really did look like, otherwise ...you can't tell something like that from pictures or the movies or whatever...it just help you visualize!*

In her use of the skeleton for visualizing Renée was behaving very much like curator Henson when he imagined the living dinosaur while handling a fossil he found in some desert landscape. At the same time, the visions provided on the screen beside the skeleton provided a technoscientifically authorized visualization, something that would serve to constrain the imagining. In his youth, Henson had the aid of widely published palaeoartists like Zdenek





Burian and Charles Knight.<sup>11</sup> Visitors to this exhibition had the walking, running, friendly good mother lizard in addition to the litany of popular productions of television and feature films. The complex, hybrid, and personalized mixing taking place here was occurring through the juxtapositions of skeleton, animation, the display instruments, recollections of visualizations from other venues.

The visitor articulation possibilities in engaging with this exhibit seemed extremely complex, at times messy. This was the sort of imagining going on with the mounted cast of ROM #44770. What sort of visualizing and consequent articulations would take place for Renée or others on encountering instead a working laboratory? Perhaps it would become clear that many technical steps informed the skeletal form and the animation. On the other hand, I recalled the silhouette diagram of the skeleton on the wall outside the lab had precisely depicted the pose of the skeleton as it would be mounted in the display two years later even as the bones were being removed from the matrix.

The exhibit did have knowledge constraining effects on the direction of phantasies however, and again, these developed through the juxtaposing of various display elements to produce the narrative effects which Interpretive Planner Jennifer Ross had conceptualized. Simon, one of the two boys who had been operating the console as though it was a video game, recounted to me what he believed the exhibit had been about:

*Mostly the exhibit was about the Maiasaura...and it was about the evolution of the world...there was a lot of stuff in there about, um, evolution of everything...like how the world changed so much... like, there was less water and then there was more water, less, more... And it was eighty million years ago...and it was almost completely covered in water, big huge sections...and the Maiasaura lived near the water in North America...the world for the Maiasaura was like a jungle...because in the other videos, some of the buttons were marked 'environment' and you push and it showed it as jungly with water...*

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<sup>11</sup> cf. Czerkas and Glut, 1982, Augusta 1964.



Notably here, Simon's narrative was largely that available from the Visit to the Cretaceous interactives into which he had freely and readily aligned the Meet a Maiasaur "environment" selection depicting the creatures in a "jungly" place. He went so far as to look for "water" in the Meet a Maiasaur animations, after the Visit to the Cretaceous interactives had instructed that Maiasaur "lived near the water." Both boys also went on to tell me, first that dinosaurs weren't that interesting to them, in spite of the excitement over what they had just experienced, and that it was the exhibit media that forced them to be interested:

*I think the interactive stuff was great...I didn't want to read like all the labels, but when you push buttons and it tells you... it's easier... Yeah, and some dinosaur books get pretty boring, I think, but if it's like on a giant TV, it's hard NOT to watch...and it shortens it so you don't have to listen for too long...*

The interactives had appealed greatly to them—as they had done for the majority of both female and male children I had witnessed in this theatre. What appeared most to affect children was speed, thrill, stopping power, the very characteristics of computer gaming experience.

These two, however, had almost entirely ignored the "front-end" entryway and hall of skulls and showcases which the designer had put so much energy into. As Sam Enright noted in one comment, referring to the "front-end" component or "Cretaceous Period" displays:

*...it would have been much better with more money... but a very large portion of the budget was spent on the multimedia...*

Here, however, was a case, as the planning documents had suggested, where the visitor should be able to "get in and get out" quickly. Perhaps they knew that children would be setting the pace. Action would beget action. The exhibit relied on the hope that kids (like these) would be able to rapidly assemble the elements into a totality—and in this instance just such a rearticulation was indeed achieved.



The multimedia producer, Walter Tomasenko, had attempted to intervene in the predicted reaction of children to treat this as a video game. But it was this likeness to video game competition which appeared to most create the conditions for articulation. Tomasenko's intervention was to cause the button lights to go out once a selection was made and the animation was playing. This design feature may have slowed down the engagement, but only enough to momentarily interrupt the usual competitive free-for-alls of children pounding the lighted buttons. Once again, it had been the interpretive planners who had predicted the fuller intricacies of visitor behaviour in this space. Responding to the written plans, Jennifer Ross had described this:

*We expected visitors to be in small groups...We just know that...that most visitors do not come alone...We anticipated that this exhibit would bring family groups, mostly. Or at least it would be an important part of the audience, therefore you had to plan stuff so they could cluster around it, ...or point things out to each other. When they are playing with a video...three or four of them ...they can have room for each other. Oh yeah [reading the Interpretation Statement] "constant interruptions will be normal, as will random sampling of different exhibit effects"... They will point out points of interest to each other. Ask each other questions. "Exhibit elements must be dramatic, stream-lined and easy to comprehend, and stay close to the central theme"...and then "People should be able to get into an experience without preamble, but should feel satisfied getting out quickly." They couldn't get too in-depth, and so on.*

In a designed fly-through, socially active, embodied encounter like this, the planners made equal effort to ensure there were just enough cues to keep such playful knowledge engagements from straying too far.

The ROM also offered guided walks through its galleries through a variety of programmes, providing another means of directing visitor knowing. Some walks were led by volunteer docents, some by teachers on the museum's education staff, still others by paid interpreters. One docent by the name of Virginia, about 60 years old, was a long-time member of the museum. She told me how she would proudly bring visitors here to the Meet a Maiasaur exhibit as part of her 'great women at the ROM' interpretive tour. *Maiasaura*





would join Egyptian mummies and Victorian ‘ladies’ as an exemplar of feminine achievements displayed at the museum.

As discussed in relation to the back and forth comparing of animation and skeleton, visitors would continually fill in with their own ideas, narratives, or visualizations when translations and explanations were not provided explicitly by the display. In a different instance, another guide, leading a group of seven middle-aged and older adult visitors entered the theatre. The mounted skeleton was in place off to the side. The guide responded to a question, directing the imagining to unseen, serious actions elsewhere:

Guide [gesturing to large screen with moving Maiasaur animations]: *What you see here are computer animated reconstructions of the Maiasaur. This is not Disneyland here. This is all based on sound and thorough research. The only thing we don’t know is the colour of the dinosaur as the skin is not preserved....*

Woman Visitor [pointing to mounted skeleton in the same room]: *Is this the original that it’s based on?*

Guide: *Well, yes, but this is a cast, a copy. The actual fossil cannot be displayed as it is needed for research.*<sup>12</sup>

If anything, the animations juxtaposed against the mounted skeleton in the museum setting had acted upon the situation, drawing out the question, and requiring the guide to put the elements into reasoned context. The central imperative was to suggest a sequence of connections between authentic fossil and the authentic representations—i.e. original specimen for research, cast for display, animation based on original specimen.

In this instance of simple conversation, the guide and the visitor had understood each other consummately, knowing what the appropriate questions and the appropriate answers should be. It was important to the guide to note what these animations were not, “This is not Disneyland here”, just as it was important then for the visiting woman to interrogate the extent to which the “sound and thorough research” was “based on” an “original”. The use of

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<sup>12</sup> ROM Interpretation Guide in conversation with member of guided tour through the Meet a Maiasaur Theatre. June 5, 1998 gallery observations. This group stayed in the exhibit about four minutes.

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a copy for display is then justified with confidence by the guide in noting that the “actual fossil...is needed for research”. By making this simple series of connections, the guide had also distinguished the authenticated animations from those of “Disneyland” (or say, of *Jurassic Park*), understanding that the ‘quality’ of those outside animations might appear, for all intents and purposes, to be just as expert and finished as these.

Curiously, and amplifying the common imagining of the museum function taking place here, the guide was in part mistaken in her comments. No research on the material was taking place, though the skull was being readied for further preparation and planned future study. In fact, nothing on this specimen had been published to date, and very little in this display was actually based on this specimen in the first place.<sup>13</sup> Rather, this was a moment of uttering and producing the expectation to fulfill the action of being a museum. To make that most intelligible, it was equally important to use Disney as a foil. That foil, as I discovered, was crucial not just in such public outcomes, but in the very making of this exhibit which, for this institution, was “probably the first project where media was incorporated as a key part of the design”.<sup>14</sup>



The following discussion takes its cues from two lengthy interviews with the former Digital Media Services manager and multimedia producer for the Maiasaur Project, Walter

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<sup>13</sup> I should also point out that Disney and Hollywood productions use very similar approaches to technical verification of animated dinosaur reconstructions, consulting with palaeontologists—usually for a fee—and then expending far more extensive resources than most museums to realize the animated outcome.

<sup>14</sup> These are the words of Walter Tomasenko, who effectively parented the multimedia developments of this display. A somewhat remarkable footnote to his comment, however, is that in the late 1960s, the communications theorist Marshall McLuhan had worked with painter Harley Parker on an experimental invertebrate palaeontology display project at the ROM which is rarely discussed. Lovat Dickson (1986: 152-3) wrote: “When Parker designed the...gallery in 1967, complete with a “total environment” provided by films, stills, tapes, telephones, push-buttons, smells and sounds, the resulting assault on the senses was so great that the display became known as the “discothèque gallery”. “Reports from long-time staff of the ROM are that McLuhan’s use of televisual and interactive components was more or less a public failure, the implication being that the everyday competence in knowing how to engage such media had yet to become widely distributed to the point that visitors could ‘make the transition’ to the displays in a museum context. The McLuhan-Parker project is worthy of in depth study and comparison in light of the wildfire spreading of interactive, digital media in cultural institutions today. See McLuhan, M. Parker, H. & J. Barzun 1969.



Tomasenko. The accounts Tomasenکو gave, while lauding many of the achievements, revealed much about frustrations and contestations in the making of the exhibition, something that was consistently hinted at, talked around, and stated between the lines in many of the other interviews informing this research project. Most importantly, his commentaries underscore the complexities in fashioning such a project, while highlighting many of the key informing logics operating in this especially challenging project of leading-edge spectacle, and leading-edge specimen display.

### “An Exhibit Like No Exhibit You’ve Seen Before” <sup>15</sup>

*If the goal is to get people to go “Oh! cool” and discover it, that component works just fine... If the goal is to instruct and to inform, then it didn’t reach that goal... But the purpose of exhibits is such a spectrum... there are some who believe they should be only entertainment, others, that they should be only living textbooks ... I think it should have the full range in the exhibit, so it provides a rich didactic AND an entertaining experience...*

— Walter Tomasenکو, former Manager, Digital Media Services, and Creative Director for the Maiasaur Project

Walter Tomasenکو was the director in charge of developing the interactive multimedia displays for the Maiasaur Exhibit, of which the large screen animations were pre-eminent. He explained to me how by the mid 1990s, “Canada [had] about 60% of the computer graphics industry [with companies like] Side Effects, Prism, SoftImage in Montreal, Alias in Toronto.” With an understanding of this industrial backdrop, when asked how the Maiasaur Project exhibit was first conceived, Tomasenکو pointed out that he had been working on computer graphics and interactivity for some time, even before the new curator of dinosaurs for the ROM was hired in 1992:

*I think the idea is in some ways, self-evident and attractive. Andreas understands media more than many palaeontologists... when he sees video projection, computer animation,*

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<sup>15</sup> Jennifer Ross interview, March 30, 1998.





*interactive technology, he thinks “ah! let’s do this”...I had worked at the McLaughlin [Planetarium] before it closed... and developed quite a number of prototypes of various types of media... showing prototypes of dinosaur animation... ways to manipulate aspects of a dinosaur, whether its sound, its gait, its physical structure, ... I had then shown a whole grab-bag of this to ROM’s Senior Management and beyond... So the idea came about [in] a variety of different ways... basically [the museum] just “came” to it...<sup>16</sup>*

The belief in an inevitability here, of a technology that just needed to be exposed to the right people is clear enough. Of course this is somewhat different than the sense given to me by the curator that the project happened principally because there was this outstanding specimen available. Tomasenko added:

*...depending on your point of view, the confidence to put the money in and to produce the Maiasaur Project internally emerged...because of the success of our other media projects...or others would say it came from the curatorial side...now they had the specimen, so some would say it started there... So really the idea came from a number of different sources rather than just one...*

It did indeed appear to be the case that the exhibit conception could not be said to have had any single visionary source. Rather, it came about out of a series of semi-fortuitous collisions: of high-tech media-maker with media-literate dinosaur researcher, with the appearance on the institutional fossil market of a very complete dinosaur skeleton, with the recognition by managers in Exhibit Programming that it could be interesting to combine new media with the display of specimens, with the story-weaving work of the Interpretive Planner, and of still other agencies in the history of this exhibit and its specimen.

Senior Managers in the museum had taken this exhibit to the Board as well to explore private sector funding opportunities. Andreas Henson recognized that the inclusion of interactive media would make the entire project more ‘sellable’, facilitating what he saw as the critically important working laboratory to be brought into the display. The interpretive

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<sup>16</sup> Interview with Walter Tomasenko, June 28, 1998. All subsequent quotes of Tomasenko are from that interview or a second one on July 8, 1998



planner had noted to me how the fundraising ‘pitch’ was being discussed around the museum:

*...part of the ability to do the fund-raising was that, “we are going to do an exhibit like no exhibit you have ever seen before. This is going to be a really super high-tech exhibit, really different...”*

So, the very point that the museum could go interactive with advanced multimedia was crucial here. The linkages were quite prolific, and not atypical of the sorts of “unholy alliances”, in the words of Canadian museum theorist Robert Janes<sup>17</sup> which are increasingly required of museums and other cultural institutions as government’s withdraw from their mandated funding roles. The extensive alliances were unfolding: the Board’s connection with the principal sponsor, Padullo Integrated; the sponsor’s connections with broadcast television as media partners and with the computer graphics company Alias Communications, which donated close to \$200,000 in animation software; and Alias’ longstanding connection with the ROM’s digital media production staff.

The sponsor credits I had seen on the Meet a Maiasaur screen could now be read as significant acknowledgments, not simply of some disinterested funding arrangements. They also signified a large network of social, technical, economic, and advertising alliances mobilized when one key sponsor had been located for this exhibition. I eventually learned that most sponsors at the ROM finance projects as a result of and in order to produce networking benefits, both social and corporate. Those close to the fundraising for this project, while professionally discrete in their discussions with me, suggested in oblique yet unambiguous terms, “...it was probably the sexiest project on the go at the time...” speculating as well with regard to the principal sponsor, “...advertising firms are savvy to what’s hot, what’s sellable, what people are interested in.” I was also told that the operating principal was that corporate sponsors often see, “sponsorship [as] a marketing

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<sup>17</sup> Janes 1995.



vehicle...your marketing department can be driven by sponsorship, and sponsorship can be driven by marketing opportunities.”

The Marketing and Advertising department of the museum worked quite closely with the ROM Foundation—the museum’s fundraising arm. In managing the private funding campaign for the Maiasaur Project, the Foundation had the most intimate sense of what the sponsor’s alliances and interests were. It becomes all the more understandable that the *pro bono* advertising productions contributed by the media partners disproportionately emphasized the interactive and multimedia elements of the exhibit. Similarly, the simple little shift for promotional purposes in the sub-title of the exhibit from “The Life and Times of a Dinosaur”, to “An Interactive Display”, is now recognizable as a signal of the reorientation of the museum, in this project at least, to the interests of private sector marketing alliances.

The significance and complexity of the dichotomy encountered in media reporting (see Chapter 9 “A Really Big Jurassic Place”) which had opposed the scientist with the lab against the digital media producer with the interactive displays was becoming far more apparent. That dichotomy had also expressed a practical and functional division in the making of the exhibition—the most repeated source of tension in fact. In one direction, the multimedia interactive components of the Maiasaur Project had made the strongest social and technical connections with corporate, fundraising, and marketing interests. In the opposite direction, the working lab and the conventional life and times story with the showcase elements had made the strongest social and technical connections to the palaeontological and museological enterprise. In other words, the “public as market” and marketing and sponsorship interests aligned readily with ‘sexy’ high-tech interactive multimedia. The “public as audience” aligned more with the Maiasaur family story and the working lab. After all the complex work of articulating these dichotomous elements, the functional divide within the museum persisted.





My point in reviewing all of this is to illustrate how these two exhibitionary impulses became a source of considerable tension, a tension that would reconfigure the ‘nature’ of *Maiaasaura* which this exhibition would offer to the public. The anxiety and challenge faced by all, was how to manage the division and sustain the interests of all involved.

One heterogeneous network of connections reached to corporate marketing interests and “sexy” spectacle. Another network of connections—or “vascularizations”<sup>18</sup>—was reaching to fossils and the sociotechnical actions of palaeontology. Both networks *plus* the tensions at their intersection were reshaping a relevant, authorized presentation of the Mesozoic and were impinging on how and what would be configured. Such vascularizations necessarily have force on the production of what comes to count as nature, altering what is supposed to be based solely upon the *tabula rasa* of palaeontological knowing—the fossil found in the ground. It is the interaction of networks which literally materializes and brings about performative Mesozoic worlds at their nexus, at the zone of implosion.

In addition, this movement toward new media technology had been envisioned by people like Tomasenko as something which could produce other sorts of organizational effects. In keeping with wider moves in the advancement of information technology in industry, Tomasenko saw digital media technology as something which could be used in every aspect of museum operation. He gave examples of how such technologies could eventually permeate the entire work environment of the ROM:

*...in the galleries...as an interpretive tool...travelling exhibitions, in which you can multiply the artifact and make many exhibitions out of it...a visitor information system...where you could use the technology to help orient the visitor and help sell things...a data management system...integrating collections management with data management...a tool for research, where the technology could be used to run simulations and do science...a revenue-generating source...we would sell our expertise, consult, produce animations...for example, I went to Saudi Arabia with three partners to*

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<sup>18</sup> cf. Latour’s use of this term, 2000.



*design and build a museum and multimedia complex in Riyadh...and then also to stretch aspects of the technology...small screens, large screens, domed projections...to actually use that as an attraction in itself as a domain of “location-based entertainment” which for better or worse is a trend we’re seeing...*

I should note that “location-based entertainment” —Tomasenko’s example of one “for better or worse trend” in museums—is an industry term for “ride films”, such as those associated with IMAX large screen theatres and films—one of the most recent being the computer graphics animated “T. rex! Back to the Cretaceous”. Tomasenکو’s main point, however, is that if you come up with an idea which distributes and integrates the technology throughout the institution (and indeed around the world as far as Saudi Arabia), then “the idea becomes self-evident”. People would, with what then becomes ‘second nature’, buy into it and see its potential and begin to use it.<sup>19</sup>

However, recalling my earlier discussions on competing interests in the development process, even in Tomasenکو’s account the inevitability of the adoption of this technology was not so easily won:

*My experience of this at the beginning was it was a real fight, and people claimed ownership from the beginning...I think it was frustrating for a lot of people...there was the 3D design component of it...those people had really tight constraints to work under...there was the interpretive planners who are charged with getting information about it...there’s the computer animation guys, like myself...there’s actually several media components...there’s the curator, who in his very difficult schedule was working on a couple of digs at the time...there’s the administration...there’s the actual building and fabrication of it...People were wrestling over really silly things, myself included...I had a certain vision about how I thought the animation could work, but had certain constraints in terms of rendering time...I believe there should be someone charged with*

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<sup>19</sup> Following Michel Callon (1991), Andrew Barry (1998:112) has suggested that interactive media might indeed have this power when he noted: “Certainly, some of those associated with science museums and science centres have hoped that interactive devices could serve both to distribute roles to humans and to generate certain human capacities.” This was the very sort of widely-disbursed sociotechnical effect which Tomasenکو was calculating with as well, one for him that was just so obviously useful to everyone and for everything.



*the vision of it... and the responsibility for the creative vision... But you see there were maybe five different people who felt they could have done that...*

This comment confirmed what others involved in the development of the Maiasaur Project told me previously, that there was as much wrestling and cobbling together going on in the making of this exhibition as there was a fluent, tightly managed, harmonious collaboration. A remark on the instability and contingent shifting of goals over the course of the development process made by Exhibit Programming Manager, Wendy Madsen, gained new significance:

*... you see, that's where there can be tremendous conflict and tremendous problems... that stated or unstated, there can be seriously different goals... And it's not even that they're conflicting, it's just that you can't accomplish them all... So you have to make a choice...*

Worthy of noting in this somewhat fractured collectivity of very sincere workers is how, in fact, the sort of top-down vision management which had been characteristic of Henry Fairfield Osborn in his rule over the public exhibit development at the AMNH three quarters of a century prior—or indeed was evident in the management approach in the development of Alberta's Royal Tyrrell Museum of Palaeontology during the 1980s<sup>20</sup>—was nowhere to be found in this process. Much as some may have wished for such a singular visionary, that approach may well have been consigned to the past. A positive fall-out in democratic terms is that a more widely accessible, open-ended exhibit may result, allowing more open valences for differing visitor interests. That said, the presumption of visitor interests and particular sorts of audience in this project had still led to quite a constraining and conservative result: the good mother, friendly dinosaur, family-life scenario.

In adopting the more collective, team approach, it was those results from struggles over resource allocations and stories to be told that would have far more force on the exhibitionary

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<sup>20</sup> For another case of striking managerial self-indulgence, see Baird 1988, where Baird writes of the outstanding wisdom of his own directorial decisions, written no less, in the third person. (eg. He writes: "Were it not for the Director's knowledge...")





outcome rather than the single vision approach Tomasenko sought. The challenge to ensure strong communicative articulation of components would become more of a challenge as control over its execution was distributed. In the final analysis, the Meet a Maiasaur theatre appears to have been the key visitor centrepiece of the exhibit, as opposed to the exhibit team's expectation and rhetoric that the lab would be the focal point. Moreover, the communicative articulations between the two were fairly weak. Perhaps most telling in Tomasenko's commentaries was his description of the moment which had provided him the greatest sense of accomplishment in relation to the large screen Meet a Maiasaur theatre:

*...the best experience I had was at the end, eight hours before opening, sounds in place, speakers in place...morning of the press release... and there was a kid that happened to walk in and tipped up on her toes and pressed one of the buttons and then went..."WOWWW!!"... then she pressed each one of the buttons, one at a time, and just was taken by it, because it was so big, and so loud, and... it really did it...*

The initial effect had been achieved exquisitely for Tomasenko—the very sort of total engulfment in the scale and the *sheer spectacle* of the mediated experience, the potentiality signaled in the exhibit production team's name for this segment of the exhibit "Meet a Maiasaur". Satisfied as he was with this moment with the awestruck child communing with the exhibit, Tomasenko was also dismayed by how the experience did not, for him, go beyond that point. Responding to my queries as to what happened, he made it clear, "...the animation was successful, but the interpretation got voted down....".

That which "got voted down" would have made a significant difference to the articulations made between the theatre and the other elements, and in Tomasenko's opinion with the visitors. A far more intricate array of media had been proposed by Tomasenko to aid the "interpretation". Additional media elements would show an "anatomical Maiasaur" in the round with the flesh added to the bones (very much like that seen in human medical anatomy books), along with different skin colourings for the dinosaur—rather than a prescriptive singular one which might suggest an unreasonable security in what was known.



Amplifying the importance of enrolling the visitors' vision, he went on, "I also wanted close-ups of eyes, big as basketballs, to encourage people to look". Many of Tomasenko's suggestions appeared to try and break down any sense of separation between the humans looking on and the virtual dinosaur—this dinosaur would look back, and like us, it had an anatomy which could be presented in a fashion comparable to human anatomy. He wanted to push virtuality to the limits, to bring this dinosaur to life, literally to make the theatre into his "living, breathing, environment". Though operating in different conceptual register—Henson conceiving of sophisticating the visitor, Ross of creating relevance for them, Tomasenko of immersing them—his vision, like that of Henson, like that of Jennifer Ross, was comprehensive.

The most important technical elements in Tomasenko's view, however, were to be an additional pair of television monitors which would create even greater densities of visual information and interconnection:

*I designed [the theatre] to have the large monitor, and smaller "slave" monitors, in French and English, with interpretation that would direct you to look at certain things... Those got canceled because of interpretation...to me that's one of the goals of effective media in cultural institutions, to encourage a person to pay closer attention and to discover some aspect of the real thing...I believed and hoped that a few things would happen...there would be a dynamic between the computer-generated dinosaur and the lab, so people would go back and forth between the two, so people would make comparisons and contrasts...I had hoped to create an immersive experience...not a television experience, but an environmental one...I had hoped the slave monitors would give directions and pointers, so that people would pay attention and notice details about the dinosaur, notice the movement, the texture of skin, the movement of the neck, and some of its other kinds of behaviors...the slave monitors, unfortunately didn't happen...I think in many museum exhibits, one needs some direction on what to do, what to pay attention to... Without it here, you'd go "well...there's a picture of a dinosaur...okay, so what?"...I really think the loss of the slave monitors was a serious blow...a profound mistake in the interpretation...*



Clearly, the monitors were potentially crucial devices for producing spectacle to specimen continuity, for Jennifer Ross's "relevance", and for articulating the lab to the theatre.

When asked what the outcome actually was in the end, as opposed to what he knew would work, Tomasenko responded dryly, to emphasize the impoverishment of the result:

*What we actually got was some behaviours—so running, walking, drinking, making sound... And then we got a bunch of semi-realistic renders through a sequoia forest...*

My initial thought was that an opportunity to link the "dynamic process" of the curator with the computer generated dinosaur had eluded the production team. To use Latour's terms, the team had failed to enroll a possible ally—notably the ally of his little television monitors—in the project of creating a stronger, more integrated exhibition, indeed, a more integrated Maiasaur. The anxiety that dazzling spectacle was driving the museum-located exhibition—and there were justifiable arguments that it was the case—rather than the specimen, the science and the story, was emerging as that which undermined the possibility of this enrollment. On the other hand, if these connecting apparatuses and visualizations had been incorporated, it remains unknown what specific effects they would have had on the performative outcome. Would the human-like family lifestyle have been that much more material and forceful? Would the illusion of a one-to-one linkage between the specimen in lab, or later the mounted skeleton, with the animated forms have appeared that much more seamless? Or would the complex sociotechnical and historical actions of "the making of a Maiasaur" have been brought into play?

A retrospective comment from Jennifer Ross acknowledged with consistent humility and sincerity how the decision to leave out the small monitors had ultimately weakened the exhibit outcome:

*...the head that ought to roll in an immediate sense if it doesn't work is [mine]. People are very nice here, and if something doesn't work, they are really nice about it. But I can tell you - on that giant video, for instance, with the giant dinosaur, I said "Let's keep it really clean and not put up text and not explain why we are doing this shot as opposed to that shot, and not tell people what to look for." I now think that was a mistake. I don't*





*think that people really - you know, did that kind of focused looking, where you are really saying “Woah, look at what happens when it turns a corner and puts out such-and-such a foot, and the tail whips around behind it.” You know, or you just simply say “Oh, it just turned a corner.” That kind of thing. I think it was mistake - I didn’t want to interfere with it or anything. I just wanted it to be this experience. I now think for instance, that I could have done more there. C’est la vie.*

Given that an entire collectivity, along with other anxieties and contingencies were at work here, Ross’s assumption of sole responsibility for this outcome is harsh and unwarranted. There were others at the ROM who sensed that a much more serious and vexing issue was being contested—one in which the very status of what counts as a museum was at stake.

### “Disneyfication”—The Entertainment-Spectacle Complex Absorbing the Specimen-Spectacle Complex

What other possible significance could the loss of these monitors have? Tomasenکو viewed the situation as one of institutional conservatism rooted in an abiding Luddism: *...first, the resistance to change....At the first staff opening...people were all lined up against the back wall with their hands behind their backs, or just leaning against the wall... seeming to evaluate it, some with their arms crossed... one person would saunter up slowly, press a button, and walk back... they didn’t even mingle...I was amazed... I mentioned it to a friend...who said to me “It should be obvious to you....for them, this represents the future and the lack of security, because technology is stepping in, so the skill set, is totally different for many, really an antithesis”...*

Rationalizing his project even further, what Tomasenکو desired instead, was that the managers and staff in the museum would understand that integration of media systems could produce a “return on investment”, noting:

*...this museum, and very few museums have a “return on investment” model... so, few measurable goals—for tracking effectiveness, to increase attendance, to leverage resources, improve education, to get folks to the Website, to manage better production*



*pipelines, to educate staff, and so on. That's the return on investment view, but I think you get several kinds of reactions from people working in museums, which are far more front-end: "kids love it, it's a draw, kids show other kids" .... "it brings the perception of the museum into the 90s and the 20th century" ... at exactly the same moment, .. [speaking ironically now] "it moves the museum toward the Disneyfication of the collections" ... you know... "theme-parkitude" ... "you can even pick up your mickey-ears on the way out..."*

Tomasenko was presenting what was, in his estimation, a means of avoiding theme park identification through better "pipelines"—integrate, build a media infrastructure, put digital vision at the core of the institutional process. Yet, it was the Exhibit Manager, Wendy Madsen, who located the issues in much more worldly trends as a festering source of anxiety among many who were perhaps even more committed to principles of maintaining what for them was the public distinctiveness of a 'museum':

*...it's fascinating with what's happening... because the museum is being included in the "entertainment field"... it's "leisure dollars", and decisions about what you will do with your leisure time... "will I go to Canada's Wonderland, or will I go to a movie, or will I go to the museum"... It's a fascinating area to try and sort out... You know, there's all that marketing jargon about your "market share", your "brand", what makes you "unique", and Universal Studios and Disney are creating museum-like experiences, and they keep saying, "the one thing we don't have is the scholars and the collections." You know what? They'll have them... they're going to have them so soon. Because it's cheap relative to the kinds of costs they encounter—There are a lot of unemployed experts out there, and you can BUY collections... [laughing nervously now]... I think it's a very, VERY interesting moment...*

Indeed, several visitors had cited theme parks including Canada's Wonderland as an appealing option to visiting the ROM. The critical point which Wendy Madsen was presenting here rather complicates Tomasenکو's previously stated comment and his general proposition that "spectacle by itself is Disneyfication". Though implying that there was some great technological revolution underway, Tomasenکو suggested rightly that the historical work that museums do is to put spectacle, "...into context, so that there's



meaningful ideas and authority behind it,” and by so doing, “you take it to the next level”. The historical situation now, however, is that Disney itself is in a position to “take it to the next level” and with that take over much of these special roles thought by Tomasenکو to be the sole reserve of the museum. The question then, is how will public cultures of nature fare in the face of such continuing transitions to consumerist, bottom-line, profit-margin thinking?

Madsen is correct in gesturing to how very interesting this moment is, and dinosaur fossils may be a key litmus test for many reasons: they are collectable, they are rare, they are available on the market, and the entertainment free-for-all associated with dinosaurs and palaeontology has been intensifying over the last several decades—with the Spielberg/Crichton *Jurassic Park* productions being exceedingly inflated examples. The most recent ‘landmark’ case directly implicating the museums and scientific community, however, is that of “Sue” the *Tyrannosaurus rex* specimen sold through Sotheby’s in 1997 to a consortium including, among others, Chicago’s Field Museum and Disney Resorts, Inc. That corporate alliance produced an investment portfolio that could pay out \$8.3 million US for this single specimen— “Sue” cost approximately 30 times what the ROM paid for “Henrietta”. Museums are put in the position of developing alliances that increasingly look like the corporate mergers so familiar in the process which capitalist economic impulses install under the banner of “globalization”. Under the acquisition agreement, Chicago’s Field Museum would split up the whole skeleton, sending half of it to Disney World to be prepared—Maiasaur Project style—before the paying public, while the other half of the skeleton would be retained by the “Museum” in Chicago. Indeed, Disney actually “head-hunted” the Maiasaur preparator Phil Thomm to prepare Sue in their reversioning of the ROM’s Working Lab!

On one axis then, the over-riding and utterly vexing issue is the ongoing erosion of the museum as publicly-funded, publicly effective institution, of the museum being drawn ever





more into the circle of market competition with the entertainment and leisure industry. Tomasenکو and Madsen share a liberal consensus in resisting “Disneyfication”, but with differently nuanced concerns. Tomasenکو’s utopianism sees market participation as laudable so long as the dedication to the object, the collection is maintained. Madsen’s point considers that as the highly capitalized theme park, film, and entertainment industry move into the realm of museological practice, public funded museums will be increasingly marginalized.

With that as a backdrop, the unspoken and apparently intuitive position of interpretive planners to slow-pedal multimedia was possibly less of a Luddite response, but more so understandable as an implicit uneasiness about the hegemonic *capture* of public museum functions by the marketplace. Wendy Madsen’s suggestion was that museums were at threat of being beaten at their own game—the very project of articulating the specimen and the spectacle. The complementary point is that this move is enhanced by and is accelerating the gradual displacement of state interests in the activities of otherwise ‘public’ museums.

As if to salvage the most from the project as he saw it, Tomasenکو spoke at last of the several gains that he felt were made with what was established:

*Real benefits?... it created a relationship with a big software company, Alias,...got a bunch of free software, and access to high-end hardware...visualizations of chariots in Saudi Arabian project... working on plate tectonics...I don’t think that would have happened without that infrastructure in place...that requires high-end graphics hardware...Software requires people to be thinking about incorporating media from the very beginning, rather than as an afterthought...*

As highly capitalized Disney- and Hollywood-driven animation, ride films, and theme park attractions have become a consumer commonplace, the institution has been pulled further and further into ever-more sophisticated and costly modes of visionary and experiential production. The pressure with such moves is to incorporate the technology not just into institutional practice, but into how people actually think, as Tomasenکو noted. The distance



between the technologies of spectacle and the techniques of palaeontology become ever greater. It is little wonder that the media producer saw the loss of his proposed ‘slave monitors’ as a “serious blow”, a “profound mistake”. It signified for him not just a loss of communication power, but a loss of the articulation power, the undermining of all the modern, utopian potentialities which new technology, in his partial perspective, could offer society. The consequences, of course, are multi-edged.

### The Science-Spectacle Divide

Most of the preceding discussion has addressed the increasing slippage between public museum spectacle and industrial spectacle. Other matters become apparent when multimedia production is considered along a second axis, that of its relation to scientific knowledge. Tomasenکو also pointed out how fickle he felt the entire process of reconstruction and animation had been when it came to matters of grounding the result in any kind of coherent body of technical palaeontological and geological knowledge. Here, he speaks of the interactive continents display:

*What was interesting is that we produced the animations in-house direct from U. of Texas and U of Chicago data, and had maps over 10 million year intervals, showing palaeogeographic information of the time... I realized how much hokum was in that...because of the way that these maps were generated...there’s just so much conjecture... the difference between one researcher’s map and another’s...one has North America split into two parts, the other into three parts... How come?... well because someone found one aquatic fossil in the middle of this continent, so there should have been this MASSIVE one thousand mile lake in the middle!...*

As encountered in the interpretive planners’ activities, in the expressions of the palaeontologist, in the designer’s wish for elemental and modern continuity, and now here once again in the media producer’s frustrated efforts to tie the exhibit down to reliable “facts”, the returning resonating issue was the common urge to articulate, to create a



seamlessness that was total, flawless, as real as the real world of things it was all supposed to be based upon. That realness was, however, astonishingly elusive:

*I really enjoyed working on the evolution one which showed difference in skulls... but it's misleading as hell.....there's no continuous steps, there's explosions... and it's not more advanced or more evolved in the sense that you're leading to more complexity... so the morphing and evolution of one skull to another is really misleading... BUT, it's really pretty... makes for a great interactive...*

Museum-based communicators were caught in this tug of war over getting it right and achieving some kind of formal satisfaction. Over and over, Tomasenko's lament was that he was let down on *both* sides—by the exhibit planning and budgeting decisions which would have added additional didactic technologies to articulate with the audience, and by the scientific basis to be able to anchor his animation visions to fossils, specimens, to the repertoire of things in the object world which were supposed to animate his animations! Tomasenko's concern can be summed up: how could one go about creating these lives, without the material to do so, and without the means then of saying how you knew what to do?!

On one hand, the position of the media producer belied this general anxiety about articulation, but in a more specific way, it also pointed out how the limits on the scientific technical knowledge may be in-filled by the media specialist—much as the children engaging the fragmentary manifestations of knowledge in the exhibit had done. This was entirely consistent with what has gone on throughout the history of palaeontologist-illustrator working relationships: where one of the collaborators is unable to provide the visionary input, whatever it may be sourced in, the other will fill in the blanks. In the game of reconstruction—for scientist, artist, or both together—the extraction of the phantasmatic is antithetical.<sup>21</sup> Tomasenko explained the constraints he faced, and the solution he applied:

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<sup>21</sup> See previous discussion on such relations as Russell and Kish, Osborn and Knight, Owen and Hawkins. Also see Tom Mitchell's wide ranging discussions of dinosaur art (1998:48-56, and 265-275).





*....on the science, I talked to a few other dinosaur palaeontologists.. And their Maiasaur would have been totally different in terms of its movement, its gait, its colour, its behaviour... and yet they each had equally valid cases... I needed input on things, like 'how does the dinosaur walk' ...which leg moves first?... does it walk like a mammal... So, [the curator and I] went to the zoo and had a look at some animals... Andreas may have consulted some people on biolocomotion... no one could give answers, or reasons... I was looking for information from trackways... apparently it can't be done... So, o come up with something, we did some experiments with the inverse chromatic solutions with Alias software...*

His last comment here signals the “solution”: fill-in the blanks with the technologies of spectacle, of industrial imagining, quite literally of “Industrial Light and Magic” —for the software technologies were practically the same as those used to animate Lucas’s and Spielberg’s creature- and monster-populated films. The technical apparatus available to the animator, and the speedy immediacy with which it could be applied, far outstripped that which was available to vertebrate palaeontologists. The animator with the aid and guidance of the technology would make the choices when the scientist could not provide answers.

At this point then, I have come full circle, returning to points made in the first part of this volume about the historical trading and collapsing of fiction and science, of phantasmatic knowing and systematic knowing. Moreover, it is at this point that the slippage between palaeontological dinosaur reconstruction, museum dinosaur display, and dinosaur animation in the film industry once more becomes unavoidably evident. The touchstone for that slippage, interestingly enough, is the diminutive, precious pewter Maiasaur.

### ***Maiasaur as Fetish: Nature’s Hidden Histories***

*In speaking of lies, we come inevitably to the subject of the truth. There is nothing simple or easy about this idea. There is no 'the truth,' 'a truth' - truth is not one thing, or even a system. It is an increasing complexity. The pattern of the carpet is a surface.*



*When we look closely, or when we become weavers, we learn of the tiny multiple threads unseen in the overall pattern, the knots on the underside of the carpet. That is why the effort to speak honestly is so important.*<sup>22</sup>

Having coursed through all of the exhibit spaces, I will consider the Maiasaur Project in wider cultural perspective, discussing how it is aligned with the historical trajectories discussed in the first section of the dissertation. Much of what I have been presenting in these ethnographic accounts on the Maiasaur Project has been on the political effects of articulating forms of life out of fragments of matter found in the ground. Indeed, the quoted statement I opened with in my first chapter on the Maiasaur Project had noted that this was what curator Henson had intended in the project:

*Approached last year by the team which recovered Cretaceous-era dinosaur fossils in northwestern Montana, ROM paleontologist Dr. Andreas Henson “saw it as an opportunity to show people how a specimen coming out of the ground is transformed into an object of scientific investigation and ultimately public exhibit”.*<sup>23</sup>

Politics, however, lay not simply in what is presented, but are also to be found in what is not—the absences, the failed communications, the lost possibilities, the deliberate or accidental disguising of intent and action.

In this closing account about the Maiasaur Project I also draw attention back again to the much larger dynamic process which more fully informed the making of this exhibit, but which was hidden from view. In doing so, I also draw together elements of the first and second sections of this dissertation. I do so by means of a specific illustration: the little pewter Maiasaur as a material case of a dinosaur fetish, as something that obscures.

As mentioned in the previous chapter, the idea of featuring a pewter Maiasaur in the official entry to the exhibition had come from designer Sam Enright. Enright had noted how the physical work of producing the model actually came about:

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<sup>22</sup> Rich 1979.

<sup>23</sup> Pachner 1995:42.



*...the idea came up through an opportunity... an artist was modeling the dinosaur up with Andreas to have it digitized for the computer animation... He only took it to a certain state because all he needed was the basic structural, muscular framework with which to translate to computers and they would flesh out the creature, with Andreas' input... So we got this artist, with Andreas obviously influencing the final details, to make this thing look as realistic as you could speculate it looking, WITHOUT skin colour...which I think they know least about...*

The highly technical work of producing the computer graphic animations in the Meet a Maiasaur theatre had a crucial requisite: the making of an accurate scale model. To meet that need, a very accomplished animal sculptor, Manfred Tolman of Toronto, was commissioned by Walter Tomasenکو to sculpt two, three-foot model Maiasaurs. One of these became the original from which the pewter touchable Maiasaur was cast, and the other, as Enright noted, became the digitizable source model for the making of the computer graphics animations.

Curator Andreas Henson collaborated with Tolman, and according to both, Tolman had closely followed Henson's instructions in the envisioning of the Maiasaur. In that process, Henson had to envision the mounted skeletal form of the Maiasaur and the fleshed out creature. The form imagined in this collaboration would be repeated: in the finished mounted skeleton, in the rather stiff postures seen in the Meet a Maiasaur animations with their digital smoothness, and in the comparably smooth form of the metallic, pettable Maiasaur. That in turn, has the same form as the official illustration on the advertising material. The way the animal model was configured physically is that which flows through the exhibition. The chrome Maiasaur had acted tremendously upon the children who encountered it. It was mentioned repeatedly by visitors as something they remembered most from the exhibit. In short, the visual continuity between display elements in this reconstruction was quite remarkable. As designer Enright had told me, "...it builds an integrity, a consistency, a repetition, a certain positive redundancy in imagery...". This was visual articulation at its best—yet almost nothing of the detailed technoscientific work of





articulating these forms, from specimen to finished creature was elaborated in the exhibit. Again, Henson's dynamic process was obscured.

Fashioning the form of this figure required significant input from the curator to provide technical instructions on dinosaur anatomy—yet another occasion of articulation. One of the best illustrations of how many hidden connections were enabled through the making of this model is contained in a long quotation from a very detailed article on the computer-graphics production for the *Maiasaur* animations. This description also reveals the tremendous expenditure in labour and technology which informed those animations, suggesting as well why the animation component drew such a large portion of the exhibit's budget. (Inserted numbers highlight points where the curator would have advised):

*A model builder, working closely with the curator, [1]produced a scale model of the animal in resting position. An animator digitized the model by selecting points on its surface with Immersion's Personal Digitizer stylus which with the help of HyperSpace software from Mira Imaging, converts their locations in DXF format to a Macintosh as a 3D local geometry. This digital skeleton was transferred over a high-speed network to an SGS Indy running Alias PowerAnimator 6.0 to serve as a guide for the construction of the NURB (non-uniform B-spline) smooth model. The geometry went through several refinements to ensure its scientific accuracy [2]and to minimize control vertices for ease of animation.*

*Next, artists produced several skin textures, using Alias 3D Paint to map skin directly onto the 3D geometry. The skin and beak textures and color were derived from fossil evidence and discussions with curators. [3] An illustrator relying on fossil samples created the backgrounds, such as a Sequoia forest and the young Rocky Mountains, using scanned photographs and illustrations rendered with Photoshop and Painter on a Mac. The *Maiasaur* renders were matted atop the backgrounds (which were not modeled in 3D because that would have tripled the frame rendering time). The animators then programmed a series of interrelationships within the PowerAnimator model, giving the *Maiasaur* expressions and realistic movement of skin over bones and muscles.*

*With the animations blocked out in detail on storyboards, the animators worked the geometry into position and rendered a series of low-resolution motion tests. Curator*



*Henson [4]helped the animators direct the animal's movement based on the analysis of dinosaur joints and bones. (As a zoologist, he found even this state-of-the-art technology fell short of creating full fluidity and realism of movement. He also foresees possible controversy over his interpretation of the creature's speed, which he based on stride measurements from footprint and track way evidence.) [5]*

*Once the prototypes were correctly synchronized, the animation was rendered in high res on two Indies. The sequences were then imported as Targa files to a PC, displayed using a Truevision Targa +64 graphics adapter, and recorded sequentially to a Sony single-frame video disk recorder.<sup>24</sup>*

While the working lab had been intended to reveal the dynamics of palaeontological work, all of this translation work of arriving at that outcome, the visualizing-, scenario-making, reconstructive work of the palaeontologist is never revealed. The added irony is that the model would even pre-figure the mounted skeleton. As I have mentioned previously, before the lab was even finished, before extensive preparation had taken place, the scientist aided by the model builder already knew what the dinosaur would look like. I recall the woman visitor in the gallery asking the docent if the animations were based on the skeleton: in fact, both the animations *and* the skeleton were based on this complex set of interactive imaginings by the palaeontologist with the sculptor, the animators, artists, media producers, designers, drawing in turn, not so much on the specimen ROM #44770, but rather on a number of technical articles on related hadrosaurian and ornithopod dinosaurs.

The entire procedure of model-building, scene-making, and live-action animation signals a tremendous degree of media technology transfer. This of course, now draws the Maiasaur Project actively into the long history of literary, filmic, palaeontological, museum exhibit trading which I reviewed in the first part of this volume. Once again, Hollywood had multiple direct and indirect connections here to this legitimate museum work at the ROM. The first connection occurred as the ROM purchased the rights for 60 seconds of footage of animated Maiasaur nesting created by California animator Phil Tippett of Tippett studios and

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<sup>24</sup> Pachner 1995:44-7.



used in the “Maiasaur Family” video. That film had drawn upon scientific knowledge from the early 1980s associated with the Maiasaur research conducted by Montana vertebrate palaeontologist Jack Horner, to provide the first dramatized filmic animations of nesting Maiasaurs, and those animations were in turn fed back into this mid-90s exhibit.<sup>25</sup> The animation technique used was the same technique used by cinematographic dinosaur animators starting in the 1910s: stop-motion animation. An Australian stop-motion animation studio’s Website describes the technique succinctly:

*...stop motion animation involves the manipulation of movement through time. Shooting each frame of film, the animator subtly alters the model’s position with incremental changes constructing a movement over a sequence of frames. When the film is viewed at normal speed the character appears to move of its own volition. Of course the hard work done by the production crew is hidden between and beyond each frame of film to allow the illusion to be complete.*

The point about vanishing labour is not to be taken lightly. I have alluded to it repeatedly, in relation to ‘behind the scenes’ museum work that invests specimens with life. In film animation, like exhibit development and science, the work of many individuals in the imagining process comes into play, work which in museums typically receives no visible credit. Film productions, at the least, name many of those who have contributed in every showing. The unhooking of that labour—in Marx’s sense now—is what then gives the outcome its autonomy, its aura, its very reality—and that point may have equal purchase when aligned with a museum artifact, or with a free-moving animation of a prehistoric creature. Matt Williams, another animation enthusiast adds to this point:

*...the animator can, in effect, confer life on his subject and, by superimposing the model onto a full-scale, lifelike background...make us believe that dinosaurs do, in fact, exist.*<sup>26</sup>

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<sup>25</sup> Sources for the following discussion are mostly popular and virtual: Tippet Studios Web page: <http://www.tippet.com/history.html>; NewTimes Web page feature article: <http://www.newtimesla.com/archives/1997/112797/feature-1.html>, © 1997 NewTimes, Inc.; Williams, Matt, BFS Newsletter, Vol. 21, No. 1, January/February 1997; Raging Polygons Inhabit The Lost World By Ron Magid.

<sup>26</sup> See Matt Williams Fan article in BFS Newsletter, Vol. 21, No. 1, January/February 1997.





Put the autonomous character into a “lifelike” space and its autonomy from the hidden means of production is ever further secured—in short, a fetish is born. That move, from make-believe to “making us believe” is pivotal, if misleading. I say this because it also elides another labour trajectory. The history of scientific imagining necessarily precedes the succeeding filmic animation. In turn, when set into motion against the history of museums and palaeontology, it is clear that the work of stop-motion animation has contributed to the very materialization of dinosaur palaeontology’s object—the reconstructed dinosaur and its living world. These respective metiers have the general goal of reconstitution in common, and as discussed previously, the transfer of knowledges and techniques between these various craft networks has been brisk.

Tippett can be located in the same genealogy of monster and dinosaur film animators which began with Willis O’Brien in the early part of the 20th century. A recent web fan article noted Tippett’s animation achievements:

*His creations had included the volcanic flying reptile of Dragonslayer, the elephantine Imperial Walkers in The Empire Strikes Back, and the gelatinous Jabba the Hutt in Return of the Jedi. These massive incubi had bone-rattling impact, menacing beauty, and the kind of horrific details that stick in a movie-lover’s memory.*<sup>27</sup>

Aside from gaining an ability to produce such memorable, dramatic affect, Tippett’s revolving involvement in monster, alien, and dinosaur animation films also marks in shorthand some important technological changes in animation which had a direct bearing upon the making of the Maiasaur Project as well. Tippett had worked for several years with Industrial Light and Magic, George Lucas’ special effects company for the *Star Wars* films. Forming his own company in 1983, Tippett worked on the CBS, Walter Cronkite hosted series “Dinosaurs!”, in which he used stop motion techniques to produce the Maiasaur animations which would both earn him an American television Emmy award for special

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<sup>27</sup> Tolman who sculpted the Maiasaur models, was also hired by Hollywood production companies to design monsters, cyborgs, and alien beings. He informed me that one of his most recent inventions was for the latest sequel of the film *Robocop*.



effects, and which, as well, would end up in the Maiasaur Project.<sup>28</sup> Tippett had produced these stop-frame model animations, without the digital technology available later to him when he collaborated with the producers of *Jurassic Park*.<sup>29</sup>

Spielberg hired Tippett in 1991 to work with his special effects team on the first *Jurassic Park* film, and he participated in producing some 50 different stop-motion sequences. A turn toward use of Computer Graphics also took place during that production and Tippett's studio took their models and attached computer-linked sensors to their joints to permit a model-to-computer digitizable interface. The *Jurassic Park* sequel, *The Lost World* took computer graphics animation to its most recent stage, where the motion is almost entirely digitally created, in cyberspace.<sup>30</sup> Video game animation technology has tracked the digital turn as well, and now the practice and experience flow between television, video games, museum-based animation like the Maiasaur Project, location-based entertainment and ride films, and finally, Hollywood SF film is unimpeded.

The Meet a Maiasaur theatre animations, similarly, superseded the Tippett visuals in this historical movement. Alongside this newer digital animation, these older-style images could easily be trumped, surpassed by a newer technological imaging process. For those who had been exposed to repeated animated footage of dinosaur interactions—and prime time television, as well as school film presentations has ensured the numbers in English speaking

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<sup>28</sup> Those animations have over the course of the last decade and a half become the standardized image sources for popular imagining of Maiasaur behaviour—good mothering has become the norm. In the 1997 *Jurassic Park* film, *Tyrannosaurus rex* had as well become a good mother—indeed, even a good father.

<sup>29</sup> This was reported to me in interviews with Walter Tomasenko, manager of Digital Media Services, and with David Ritter, who supervised audio-visual production for the exhibit.

<sup>30</sup> The Universal Pictures “behind the scenes” Website story outlined the process used by the animation team of ILM during the 1997 production: “...artists sculpted scale maquettes of all the dinosaurs; maquettes were then precisely scaled into clay sculptures to create animatronic live-action dinosaurs and then scanned into ILM's computers. The dinosaurs were animated at ILM on Silicon Graphics hardware using SoftImage and Caricature, ILM's in-house proprietary animation software developed for Dragonheart. The dinos and other 3D animations were rendered using Pixar Renderman, Discreet Logic FLINT and FLAME, and ILM's in-house SABRE system. ... Dutra, former Tippett right-hand man [notes], “We have to realize that we're working with tonnage and not just pixels,... A huge part of animating is understanding how an animal negotiates its weight and scale. Both compys and T. rexes are bipedal and have short arms. However, the compys weigh two pounds while the T. rexes weigh tons. This means we have to account for vast weight differences.”



North America are legion—the technical advancement of modernity, of the message of science as a progressive march forward, would be signaled as well by this contrast. But here in this exhibit, for now at least, the older Tippet animations—what some children I interviewed referred to as “claymation”—would serve the story-telling intent of the presentation, conveying as well an “older” frame of scientific knowing fashioned by late 1970s and early 1980s palaeontological concerns, along with the familiar, family lifestyle of Horner’s *Maiasaura*.

I have reviewed these points for two important reasons: first is to register the historical relation of The Maiasaur Project exhibits with the history of phantasy/materiality trade discussed in the previous section; and second, to highlight the ongoing importance of the making of a model as a key point of translation in scientific-public transactions. The omission of that translation leaves an enormous chasm between the vision and the fossil material which palaeontologist works with—and yet the entirety was represented to visitors as the result of science. While Walter Tomasenکو was seeking a technological point of media-to-audience translation through the use of small ‘slave monitors’ to connect the action of the animated beings in the Meet a Maiasaur Theatre with the Working Lab, it turns out that this other much more elaborate interactive translation device was at work in this exhibit. It is the one which has repeatedly insinuated itself into my discussions throughout these ethnographic accounts: the pewter model Maiasaur.

The little Pewter Maiasaur had been a remarkable fulcrum in the Maiasaur Project exhibition. Clearly, it had acted in so many different ways, and for many children in particular, it was one of the most memorable elements in the exhibit, as well as the element which connected their tactile experience entering the exhibit with their interactive-visual experience in the Meet a Maiasaur theatre. It was the location where palaeontology met art, where phantasmatic investments were amplified, where computer animation technologies were activated. Its sense of value as precious object was concentrated and exaggerated, so it







behaved as a museum specimen, without truly being a museum specimen. Its associated media-making history was radically backgrounded. Its associated technical history was radically backgrounded. The inferences of the scientist and artist in making it were radically backgrounded. Its very shape and stance were the result of unseen arguments and agreements. It created strong connections between the reconstructed skeleton, the life and times story, the Meet a Maiasaur animations, the family accounts, the prompting of interactive engagement.

Behind its shining finish, its anatomical precision, its extreme completeness, was hidden so much of the larger dynamic process which more fully informed dinosaur palaeontology and its products. In its finished totality it obscured the very real complex of scientific-public trading which had brought it into being. In claiming to offer an exhibit about the scientific-technical process of taking a dinosaur from fossils in the ground to finished exhibit with authentically natural visions, the very possibility that this was anything but truth was obscured. As Henson had noted to me:

*When I tell people in my sort of charming, post-modernist, neo-Popperian ways, that I test hypotheses, they go “what?! you’re not telling us truth? What’s the point in having you?”. They don’t understand how scientific stuff is developed. They want to have a ‘fact’. If you ever watch one of those 1950s science fiction movies...the scientist provides ‘facts’, like “This is a giant ‘ANT’. This giant ant will take on LA.” There’s no equivocating there. It’s not like, this giant Ant will go south and destroy San Diego, no, this scientist has said it would destroy LA and, mirabile dictor!, it goes and takes out LA. That’s science for most people—it’s a nice kindly old man who goes and tells the truth. It’s almost so priestly functional, this person who has revealed knowledge and communicates a truth to the general public. Well frankly, that’s not how science works. ...But... if you tell the public this is not an established truth, but just an hypothesis, they just won’t buy it.*

In this rather surprising commentary, Henson appears to suggest that the divide between the complexity of the work of science and the public demand for what he knows to be so elusive—‘facts’—is so enormous that to make up that divide in a transparent manner would



be doomed to meet with failure. The complexity is great indeed, the uncertainty enormous. The extra demand to produce extremely cost- and labour-intensive multimedia spectacle comparable to that of Disney and Universal Pictures had certainly been a force in making this articulation that much more difficult.

Inspite of his doubts, in curating the Maiasaur Project, Henson had attempted at the very least to make up this ground by developing an exhibit that offered suggestive connections between the specimen and the exhibitionary result. The illusion of articulation between the specimen prepared in the lab and the finished spectacle may well have been the consequence of providing a truth-like presentation of science in action. But one has to wonder what the result would have been, had Henson and his colleagues instead pressed the effort farther, retaining the lab, exposing more of the complex histories informing the exhibit, opening up the controversies, admitting the discontinuities, the imaginative dimensions, the investing of social interests, the possibility of diverse audience interpretations, the letting go of a need to fashion the effects of singular truths in the form of facts, the parallel emerging of human and saurian familiarity. While it may not have been ‘truth’, what was delivered in the Maiasaur Project became a subterfuge only to the extent that it did not articulate well enough—in spite of the genuine wishes of so many in the human collective to make it otherwise. Everyone wanted seamless. What happened was they got a sequenced fragmentation that suggested the continuity resulting from struggles over meaning. The fight seemed, as often as not, to keep certain kinds of in-filling from taking place. The fight, it appears, was over who had the right to exercise enough power to ensure that one story or one vision at each node of the display experience would come to be privileged.

So long as those investments of history remain hidden, Maiasaur remains a fetish of the sort that stands in for seeming truths. For all intents and purposes, the family lifestyle, the marketability, the specimen, the running, walking Maiasaur had become a visual fact of public/scientific nature. It was also a stand-in for the mounting conundrum faced by large-



scale, publicly run, publicly accountable museums like the Royal Ontario Museum—the loss of transparency. As the challenge to compete in the spectacle market increases, and with that to be forced into high stakes private sponsorship and a devolving sense of the value of research, it makes the work of articulating specimen to spectacle, sciences to publics, that much more difficult. Short cuts will be taken, connections obscured. It becomes that much more difficult to be accountable, to be transparent. Fetishes emerge, forms of life which will in turn be routed back into the work of science and public culture by the complex enrollment and circulation effects of Mesozoic performativity.

Bruno Latour put the question directly:

*What would happen to the collective understanding of a discipline, if scientists were no longer trying to extirpate themselves from the sin of being connected, but accepted the vascularization as so many positive features that would turn their science into a well articulated one?*<sup>31</sup>

Once again, Phil Thomm had spoken of the salient possibility to articulate through the Maiasaur Project:

*...science and palaeontology is a really good example of this point, ...it is usually done behind closed doors...it's sort of mysterious that way. And in the time of cutbacks, and Michael Harris,<sup>32</sup> and growing unsureness about learning institutions and the museum, and where it was going, curatorially anyway...It's about accountability I would say, and trying to let people know that there's nine floors joined to the gallery space that maybe they don't know about... I guess that was part of what they're to get from the specimen...*

Thomm, much like Latour, suggested how ROM #44770 had a “vascular” connection to the government cutbacks of the then (and still) current Ontario government led by premier Michael Harris. While the exhibit did move in this direction to some extent, the complexity and contingency of making this exhibit had limited the potential of producing a even fuller accountability.

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<sup>31</sup> Latour 1996.

<sup>32</sup> Michael Harris is the notoriously neo-conservative premier of the province of Ontario who led an all-out cutback campaign against many public institutions over the 1990s.





The task of unpacking and rearticulating fetishes and facts is a motion toward the recognition that nature, science and society are of a piece. With such a move, it might indeed have been possible to get a more adequate sense of the processes and actions at work: the imagining which scientists necessarily undertake in their technical action, the ways that *Maiasaur* social behaviour can come to be so much like canonical human “family” life, how dinosaurs (and humans) actually come to be gendered and related, the work of selecting the “right” fossils for research and display. This would replace the explicit and arguably less interesting “facts” which were most commonly conveyed and which Henson knew to be so contingent anyway: the name of the dinosaur is *Maiasaura*, it means “good mother lizard”, the dinosaur cared for its babies, it lived in family groups 80 million years ago. *Maiasaur* had become a gendered icon of hegemonic family lifestyles in circulation certainly since Horner and Makela encountered juvenile dinosaur bones in a Montana rock shop in 1978.

What a far more interesting, engaging, and most of all, publicly accountable exhibit this might have been had the larger dynamic process behind this object been permitted to be all the more exposed. Instead, the veil between the finished spectacle, the original specimen, and the work of science — which curator Henson had begun with some uncertainty to remove—was drawn yet again. A child’s furtive touch of a little dinosaur could have led to so much more.



## “Not Just a Rex Object”?

*If you were to go up to a child and ask them what kind of dinosaur they wanted to see, it would be a T. rex, right... There's no doubt... And if you were a business... you just look at Sue... If you're a McDonald's or a Walt Disney and you're big, you want to strike a lot of people, what else would you go for but a Tyrannosaur... And maybe that relates to capitalism somehow... the ferociousness of it ...*

Phil Thomm, preparator of ROM #44770, *Maiasaura peeblesorum*

*The job of fetishes is precisely to render the two meanings of the word 'fact' compatible: what is fabricated, what is true. By losing the notion of fetish we are forced to always ask our questions as a contradiction: is it fabricated? or is it true?*

Bruno Latour, "On interobjectivity".<sup>1</sup>

In these concluding comments, I consider the Maiasaur Project in wider cultural, institutional, and historical terms. In doing so, the Project is more fully related to the matters of Mesozoic Performativity outlined in the first half of the dissertation, offering a more particular sense of how public and scientific actions have traded in effect to reculture dinosaur life. There are three sections here: 1-*Worldly Circulations*, which relocates the Maiasaur Project in the wider landscape of dinosaurs as science and culture; 2-*Palaeontology's Kinder, Gentler Fetish*, which summarizes the particular effects and consequences derived from this study of the Maiasaur Project; and 3-*Civil Nature, Civil Saurians, Civil Locations*, which suggests some lessons for museums from the case of dinosaurs.

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<sup>1</sup> Latour 1996.



## 1—Worldly Circulations

Late in 1997, as I began to realize that the Maiasaur Project might be a provocative Canadian case for an anthropological study of public cultures of nature, I also found myself thinking about events taking place in the USA. Early in October of 1997, a skeleton of what was billed as a “middle-age female” *Tyrannosaurus rex*, known as ‘Sue’, was sold at Sotheby’s in New York for a record \$8.4 million U.S. CNN quoted David Redden, executive vice-president of Sotheby’s, the auctioneer known for dealing in fine and precious art objects: “This dinosaur is a world treasure...We have never sold anything of this importance, and nobody else has.” One WEB site report on the auction noted that among the onlookers on auction day was, “One young man” as they put it, who “brought his favorite plastic dinosaur to meet Sue”. This boy was making connections. His effort at communion is matched by the most recent palaeontological analyses, which uses cladistic techniques to bring the likes of Sue even more into the realm of the present by recognizing living birds and Tyrannosaurs as sister-groups. The tremendous efforts to commune with dinosaurs — be it through commodification, tactile experience or genetic or phylogenetic ordering — is, in part at least, underwritten by historical circumstances that have exaggerated the production of fetishes like king tyrant lizards and Mesozoic scenarios at the nexus of specimen+spectacle, nature+culture, fact+fiction.

Sue’s buyers were a consortium, recalling such alliances as that of anatomist Sir Richard Owen, artist Benjamin Waterhouse Hawkins, and the Crystal Palace Company in the erecting of some very British dinosaurs in Crystal Palace Park in the 1850s<sup>2</sup>; or that of Henry Fairfield Osborn, Charles Knight, and J.P. Morgan in the 1920s. The Sue consortium was made up of public and private interests who expressed grave concern that Sue remain in America: Chicago’s Field Museum of Natural History, the California State

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<sup>2</sup> See Noble, In press (b).





University system , several anonymous individuals, but perhaps most notably, Ronald McDonald House Charities and McDonald's Corporation (which would tour a cast of Sue), and Walt Disney World Resorts (which would receive a cast of Sue for its new theme park, "Dinoland"). Here were the lost world exhibitionary logics of dinosaurs appearing yet again.

Sue had been collected by professional fossil collectors from lands subject to federal, Sioux Tribal, and private property interests, leading to a rather dramatic FBI confiscation in 1992. American Palaeontologists in public research institutions lobbied behind the scenes to ensure that legislation which protected fossils found on public lands was shielded from what they saw as the ravages of entrepreneurial collectors, which would inflate values of specimens, making it all the more costly and even prohibitive for public institutions, including museums, to sustain practices of developing their research and display collections. Responding a week after the sale of Sue, as though this was the first time that media, museum, science, and marketing interests had come together in this manner, Lou Jacobs, President of the Society of Vertebrate Paleontology, pointed out to the Society membership attending the 1997 annual meetings in Chicago that it was time for the scientific community to consider "both the tremendous opportunities created by heightened public interest in vertebrate palaeontology and the threat to our science if we fail to provide guidance to the forces released by this interest."<sup>3</sup> Once again, scientists quite understandably strove to participate in the material rewards of public interest, while struggling persistently to authorize themselves as moral regulators on nature's behalf. Their principal ally is the original specimen, with whom they must reinforce special rights of association.

The case of Sue showed yet again that worldly actions which might take place in exclusive New York auction rooms could and did have consequences for the everyday practices of vertebrate palaeontology, and vice versa. Markets, theme parks, universities,

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<sup>3</sup> Circulated Statement at SVP Annual General Meeting, Chicago, Oct. 1997.



scientific identities and careers, federal legislation, transnational trade in research collections, private fossil collecting practices, all had impacts here. It demonstrated once more how dinosaurs are transformed through complex actions, and that what comes to be exhibited in a museum, studied in a laboratory, published in a scholarly journal, chosen as a topic of a Ph.D. dissertation, collected in a badlands field site, is subject to very intricate material *and* phantasmatic practices. T. rex is a fine fetish, and readily enrolled in such complexes.

### Transnational “Joy of Rex”

In 1998, when the Maiasaur Project entered the third year of its public life, it had already lost the laboratory which had given it—and the museum in general—a distinctive element providing “a sense of a dynamic process” (however limited that process was and however disconnected it was from the more spectacular components of the exhibit that were juxtaposed with it). At that same moment, the marketing department was advertising a new free-standing mounted skeleton of *Tyrannosaurus rex* on the museum’s main floor, as the showpiece of its summer promotional campaign. Bus shelter advertisements, promotional brochures and hand-out quizzes for children boasted slogans including “Discover the joy of rex”, “Everything you always wanted to know about T. rex”, “your kids shouldn’t have to learn about rex on the streets”, and “we’re not just a rex object”. [see brochure cover, Fig. 42, page following]<sup>4</sup> Senior management largely bypassed the curatorial and exhibit planning divisions of the museum entirely in developing this campaign and the display of the specimen. This was a marketing push, and the extreme fact of T. rex fetishism was front and centre, played with the same ironic tone which had come to characterize so many of the ROM’s advertising slogans of the past decade and longer. Marketing is about bottom line commitments, and the nature one markets has to live down to that line. The ‘Maiasaur

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<sup>4</sup> Figure 42, Cover of “Discover the Joy of Rex” Brochure for ROM’s T. rex campaign; Image reproduced with permission of the Royal Ontario Museum.

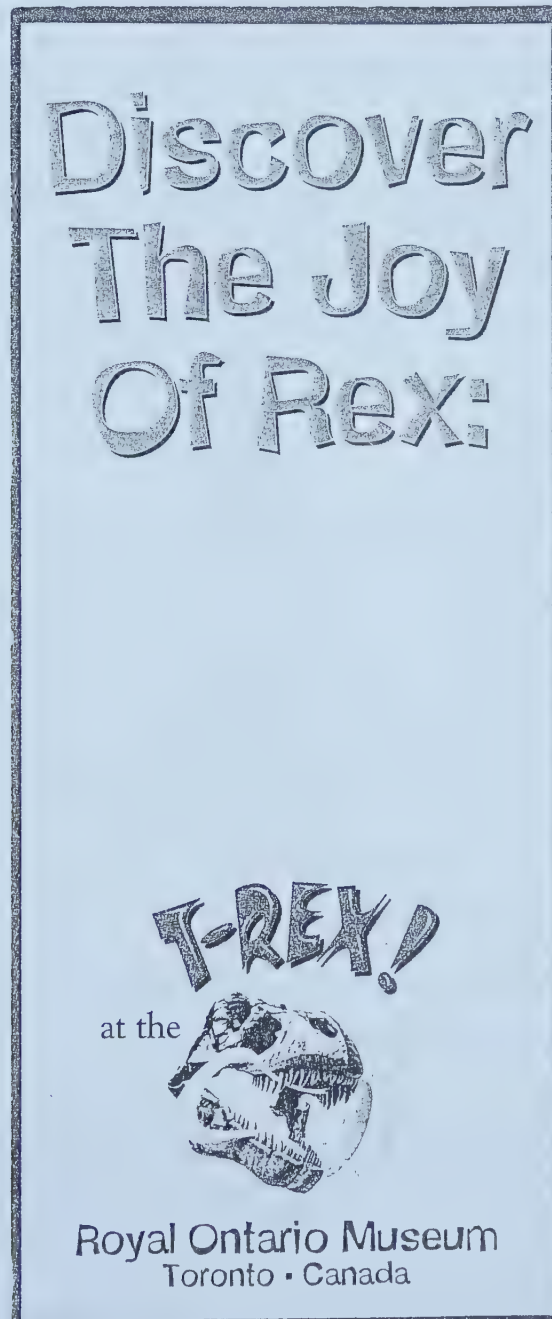


**Figure 42** (p. 341a)

**"Discover the Joy of Rex"**

Brochure Cover for ROM's T. rex Campaign

Source: Royal Ontario Museum, Image courtesy of the Royal Ontario Museum, © ROM.







Project', set against of the 'Joy of Rex' project, could be argued to be slightly above that mark. But the margin may not, in the final analysis, have been that significant.

The ROM did not have a monopoly in Toronto's rex trade in 1997 and 1998. While Sue was being sold in the US, the Toronto-based IMAX Corporation, was producing its large format 3D film, *T. rex: Back to the Cretaceous* which would open in December of 1998 offering science "edutainment" to a North American audience. As the Canadian *National Post* Newspaper noted, "Previously considered little more than a novel enhancement for either theme parks or museum-type attractions, the new suburban screen means Canadian-made technology is now one step closer to competing with traditional 35-mm film formats for everyday commercial film releases," adding further that the earning potential of IMAX was well-signaled in the earlier success of the film "Everest", which "has become one of the top-grossing IMAX films to date, and one of the most successful pictures of the year (in any format), with more than \$55-million (US) in reported earnings."<sup>5</sup> With the movement of one more museum-based edutainment medium toward full-scale entertainment business, it is less surprising that museums adopt witty slogans playing off their heretofore privileged role of collecting, studying, and displaying the authentic: "we're not just a rex object".

Elsewhere in Toronto in the same time period, a group of robotics and animation innovators and corporations—including Canada's SPAR Aerospace which had designed and built the robotic Canada-Arm for the NASA Space Shuttle—were designing and building a robotic *Triceratops* rumoured to cost in the tens of millions of dollars, for an undisclosed movie studio ride attraction in Hollywood. The price tag could make this the most expensive dinosaur ever, even surpassing Sue—though of course one was made of permineralized bone, the other of micro-circuits, polymer-based materials, and animatronic armatures. This

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<sup>5</sup> *National Post*, Dec. 17, 1998 (b13), "IMAX gets even bigger: Famous Players deal will bring 'edutaining', large-format films to new audiences." The article notes the various translations in computer graphics animation from 3D to 2D and back again, quoting an IMAX Corporation executive: "If you think about it, all these new animated movies that originate with digital effects, such as *Antz*, or *Toy Story*, are 3D films because they were created in three dimensions on a computer. A conventional screen will compress it into two, but with IMAX, you can bring it back into three dimensions."



*Triceratops* was reported to be interactive, with “skin”-mounted motion sensors so that it would be responsive to the reach and contact of visitors.<sup>6</sup>

The virtualizing of dinosaurs is being pushed to the next, always receding but invitingly reachable limit. Everything that museums once aspired to do with dinosaurs is being adopted by the market—from reconstruction, to conquest, to tactile contact. *Tyrannosaurus*, though earning new (if predictable) public and scientific gender potential through the Sue story and/or the ability to be a nurturant parent through films like Spielberg’s *Lost World* or IMAX’s *Back to the Cretaceous*, and *Triceratops*, remain leading players on these stages. In earlier days, however, the imaginaries of Osborn, Knight, O’Brien, the AMNH, and the Field Museum typically had *Tyrannosaurus* and *Triceratops* battling each other for masculine supremacy. While the ferocity of T. rex has not been erased through the coming of increasing virtuality, with that increase has also come a gentler science with a caring hand, kindlier, more active, and behaviorally complex dinosaurs, and the dinosaur fossils to prove it could be so.

It is against these and other wider circulations of dinosaur authentication, mediation, and virtualization, that performative shifts signaled in the Maiasaur Project have to be considered. Through 1997 and 1998, while the ROM’s Marketing and Communications department and Senior Management covetously ran the T. rex campaign—causing much consternation among curatorial and exhibition staff—the computer graphic Maiasaur kept on stomping across the giant TV screen on the second floor, and the little pewter Maiasaur kept stopping children and their adult companions in its calm, non-threatening, passive, touchability. Was this the extra dimension pledged in the catchphrase “not just a rex object”? Taking the irony of these words in utter seriousness, it appears that ROM managers and creative consultants knew that part of their sought-after audience recognized that T. rex was worthy of fetishistic

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<sup>6</sup> These accounts came to me from consultants both in the dinosaur-animation circles, and in aerospace circles.



identification — while another part of their audience might simply be hooked by the allure of rex. In the former of these two possible readings, however, the implication was that there was something extra about the museum, that it not only offered such fetishes, but cut through that supposedly mistaken aura by offering up the actual, the factual, the real, and more.

## 2—Palaeontology's Kinder, Gentler Fetish: Maiasaura of the Late Cretaceous

*Fetishes...produce a characteristic "mistake", fetishes obscure the constitutive tropic nature of themselves and of worlds.*

—Donna Haraway, 1998<sup>7</sup>

*We can retrieve the factish from the massacre of facts and fetishes when we explicitly recover the actions of the makers of both.*<sup>8</sup>

—Bruno Latour, 1999<sup>9</sup>

The ROM's little pewter Maiasaur is an explicit case of what Sharon MacDonald has argued — following Karl Marx and Ludmilla Jordanova — that very often “objects on display are not for the most part presented as ‘objects of men’s hands’ but ‘appear as independent beings endowed with life’”.<sup>10</sup> This point is that which appears to lead Bruno Latour to ask his vexing question: “What is it to fabricate *well* so as to make autonomy possible?”<sup>11</sup> The Maiasaur of the Maiasaur Project was fashioned exceptionally well, and began to achieve this autonomy, this endowment with life, to the point that it stands as an example of what Latour refers to as a “factish”, a hybrid of fact production and fetishistic identification. Looking at *Maiasaura*, not simply as a fetish, but as a factish, may help in recognizing more fully the

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<sup>7</sup> Haraway 1998:184.

<sup>8</sup> Latour 1999:274.

<sup>9</sup> Haraway 1998:184.

<sup>10</sup> MacDonald 1998:129; Marx 1974:77; Jordanova 1989:38.

<sup>11</sup> Latour 1999:274. Latour provides a fuller discussion of this term “factish” in his book chapter “The Slight Surprise of Action: Facts, Fetishes, Factishes”, pp.266-92.





consequences of the ROM's activity—the performance of an authenticated natural form of life.

While it may be more than clear that *Tyrannosaurus rex* has become the most excessively fetishistic of dinosaurs,<sup>12</sup> it in no way removes the potential for “boring”, or “friendly”, or “plant-eating” dinosaurs like *Maiasaura* to be fetishized. As these ethnographic accounts have indicated, ROM #44770, and *Maiasaura* generally, was subject to equivalent sorts of reconfiguring currents as “Sue” and “her” ilk were. The primary currents could be described as social, technical and economic. It seems that the fetishism has simply been rerouted. The general contours of the complex are equivalent, but the detailing of the actions and agents at play are varied. From what I have witnessed in the Maiasaur Project, this dinosaur is not a break, but a rather gendered counterpart to *Tyrannosaurus*. Viewed as a contrasting case, it could be said to be *less* of a caricature than *Tyrannosaurus*, but a caricature nonetheless. This is precisely what Andreas Henson had bargained for in choosing this behaviorally complex, “friendly” creature as the focal point of this new lab-centred, multi-media exhibition, the Maiasaur Project.

In some limited sense, the Horner and ROM *Maiasaura* did make use of and redirect the stereotype of the vicious killer dinosaur, because it or ‘she’ was, in the most human terms, gender-opposed and ‘friendly’. Palaeontological and popular feminized Tyrannosaurs only came on the scene with Sue in the early 1990s, and only after *Maiasaura* had been in public-scientific circulation for a full decade. Now it is possible in the public-scientific imaginary to have *both* male and female meat-eaters, as well as male and female plant-eaters. Now both reproduce and care for their young too. Now they can have family lifestyles, elements of which can be very humanlike—but humans get to choose their lifestyle, while dinosaurs, especially ‘good’ ones like *Maiasaura*, we are told, have it by nature.<sup>13</sup> Horner’s findings

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<sup>12</sup> cf. Mitchell 1998.

<sup>13</sup> See Marilyn Strathern for a discussion of “family” as a lifestyle choice, 1992:145-7.



published in *Nature* in 1979 told us that nests equal family structure; the telling and retelling continued in media and publication through the 1980s; and we were told once again in 1995 when the Maiasaur Project was launched in the Life Sciences galleries at the ROM.

Following on Donna Haraway's point about fetishes then, male+female+baby—which is to say reproductively heterosexual—family life is the tropic (i.e. figurative, metaphoric, analogic, anthropomorphic, and literal) nature of more and more dinosaurs in their Mesozoic worlds at the turn of the millennium. That revised aspect of Mesozoic nature is now widely and consummately performed and circulated.

Again, it was the over-determining of a factual truth which granted autonomy to the materialized creatures, *Tyrannosaurus* and *Maiasaura*, which in turn obscured the human and non-human action which made them possible. That move is part of the work of fetishes, an “odd balancing act of belief and knowledge” as Haraway put it.<sup>14</sup> What is also obscured by the autonomy granted the creature, is the time/space geography which circulates between specimen-oriented scientific and spectacle-oriented public actions: the imagining of an inhabitable world known as the Mesozoic. It is the place where dinosaurs come to life. In recalling the force of the Mesozoic (or Lost World) the possibility of denying imagining comes undone—and no matter how far into the detail of technical analysis one follows the work back, the imagining is never-ending. Imagining is part of the “facts” at every turn, and a crucial formal apparatus for fusing the facts and phantasy of dinosaurs is the Mesozoic chronotope.

These concluding points recall discussions from the first part of this dissertation on how the Mesozoic is performed into being as a nexus within and across a network of agencies. Such materialization is ongoing and plastic, as the nexus is continually reconfigured by performative means, all the while precipitating into the effect of the real. Judith Butler's

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<sup>14</sup> Haraway 1997:145.



rather dense point on performativity which I quoted previously should have all the more meaning in light of what has been presented:

*Performativity is...not a singular “act,” for it is always a reiteration of a norm or set of norms, and to the extent that it acquires an act-like status in the present, it conceals or dissimulates the conventions of which it is a repetition. Moreover, this act is not primarily theatrical; indeed, its apparent theatricality is produced to the extent that its historicity remains dissimulated.*<sup>15</sup>

By this point, the theatricality of the Maiasaur Project and of the revising historical performances and institutional acts that inform it should be apparent. The exhibition itself might well be seen as “primarily theatrical”, but the multiplicity of “acts” informing it are, as Butler says, “dissimulated” from the idea that they are performed. The better the theatre, the less the hands, the technologies, and the phantasies of those performing it are seen—they are dissimulated. They are so utterly forceful as performances that they constitute the ‘real’ or the ‘natural’, and so hide the complex of histories and actions which produce the effect of their reality. On the public front, however, the intrusion of individual visitor knowledges and phantasies—the “in-filling” I have spoken of—into that reality suggests that the relatively stable base of knowing may be (momentarily at least) altered through personal engagement.

Nonetheless, there are now relatively stabilized features which have precipitated as dimensions of the Maiasaur Project’s “late Cretaceous” performativity. A proposition about how the constituents of the time-space nexus of the Mesozoic were revised can be made: the ROM’s Maiasaur Project establishes the virtual existence of familial, passive, nurturant dinosaurs, aligning such features with maternalist identifications of the feminine. Through the complex interworkings and pressures of science, specimen, spectacle, mandate, budgetary restrictions and market, the ROM’s Maiasaur project has advanced a very regular fetish figure, a stand-in, or actor—as well as a counterpart to meat-eating dinosaurs. That

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<sup>15</sup> Butler 1993:12-13.





fetish, and its now-normative lifestyle, was presented as something with which the anticipated museum audiences could identify.

The more resolute articulations achieved in this exhibition were those between the systematically imagined social world of a particular dinosaur, and the institutionally imagined social world of the ROM's targeted audience-market: "families". The conceit which prevented visitors from noticing these sorts of actual articulations, exchanges, and effects was that of the faithful expectation that this museum of natural science (and of cultural history) was there to present the real, the true, the factual. The *Maiasaur* project promised this doubly so: by offering publicly the working lab in which the specimen would very technically and almost magically, be "brought back to life"; and then by presenting the finished "living, breathing" creature in an immersive, interactive animation theatre, as though the as yet unfinished work in the lab had led to this immaculate presentation of the "life and times of a dinosaur".

Considering the ways in which *Maiasaur* has been fetishized, also suggests how the Mesozoic nexus has shifted historically in comparison to the <Doyle+Osborn+Brown+Knight>, manly, "survival of the fittest", imperialist, 'destroyer of giant herbivore' nexus which was discussed at length in the early chapters of this volume.

To summarize, I can offer *no less* than three sorts of ways in which *Maiasaura* became a stand-in for other interests, which simultaneously indicate the nexus shift I am suggesting:

- (1) *Maiasaura* was a stand-in for "family" lifestyle. The family-life possibilities would not have become part of the *Maiasaur* Project exhibition if those parallel dimensions of human sociality had not already been enrolled in the scientific practices which brought the fossil material of *Maiasaurapeeblesorum* to light in the first place. This in turn, could not have happened if the evidence did not articulate with this possible reading. The evidence led this way because: i) Jack Horner and Bob Makela, arriving with knowledge of changing



views of the biological dynamics of dinosaurs, coincidentally came across baby dinosaur bones in a rock shop in Montana; ii) the bones led them to the field locale where they also found nests with eggs and associated adult skeletons in huge bonebeds; iii) Horner's studies of dental and bone growth patterns<sup>16</sup>, which he suggested indicated parental care illustrating what he described as "family structure"; iv) Horner and Makela named the dinosaur in Linnaean perpetuity *Maiasaura*, the "good mother lizard"; and, among other consequences; v) Horner received a MacArthur prize for his *Maiasaur* studies, and the parental care story was circulated widely in the public media, in museum exhibits, and in film productions.

All of this action (and more) was borrowed upon when the ROM acquired an outstanding skeleton of *Maiasaurapeeblesorum*. The above account was edited down, extracted and modified through a series of decisions and accidents in the making of the *Maiasaur* Project to become a disordinately mother-baby, family set of relations. This family was presented as sharing neighbours and relatives—social relationships which were seen as "relevant" to visitors who were believed to be interested in dinosaurs, and who were expected to come as "family" groups.

(2) *Maiasaura* was a stand-in for the advancing of revised ideas about the complexity of dinosaur biology. As Andreas Henson noted, *Maiasaura* could cause people to "start thinking in a sophisticated fashion about dinosaurs as once-living, complex animals that did a variety of things. You similarly start thinking of nature as a complex thing...". Henson, acknowledging that the ROM oriented itself to "family" audiences, was committed to the belief that children leading their families into the museum would carry with them a sense—i.e. a phantasy—of the "friendly" and "vicious" dinosaurs. This case capitalized on that expectation, extending accounts of newly understood behavioral complexity to the "friendly" dinosaurs. In this way, meat-eaters, which had already

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<sup>16</sup> See de Riquès 1969.



earned the status of complex creatures, could now be seen to have complex, if subordinate, counterparts in the form of plant-eaters.

(3) *Maiasaura* was a stand-in for particular gender relationalities. This was especially so when set against a historical alignment which masculinized meat-eating dinosaurs. The introduction of a creature largely aligning the feminine with a passive maternalism both limited the sense of this dinosaur's gendered behaviours, but also opened a sense of possible gendering among meat-eaters, which could also now 'care for their young'. (It is little wonder that structuralist binarisms appear to operate in culture—they are literally and sometimes consciously programmed into society and biology in the apparent form of commonplace facts.)

Any suggestion that the Maiasaur Project moved in these directions due to happenstance—that is, of a fine specimen of this dinosaur simply turning up on the market—comes unraveled. Why was it on the market in the first place? Henson explained this: as well as being an exceptional specimen, it was from a sort of dinosaur that was valued because it fit in with revised notions about dinosaur bioenergetics, behavioural complexity. Why did Henson encourage management to acquire the specimen? He already said so: for display, to get visitors thinking differently about dinosaur biology; for collections, to enhance the ROM's already important collection of hadrosaurs; and for research, to advance technical study of ornithomimid systematics, phylogeny, co-evolution, and biology. Henson also recognized the gender identifications, the passivity identifications, the counterposability of *Maiasaura* against vicious dinosaurs, which visitors and staff would bring in during display interpretation. Of course he knew these points. He lived in the scientifically-mediated and mass-mediated world, just as his colleagues Jack Horner, Donald Baird, and other professional palaeontologists live in the world. These are the worldly conditions of practicing science. In this sense, the ROM's Maiasaur is not simply a public





representation—which is where arguments about bias and political co-optation often arise—it is a part of the worldly public/scientific enterprise in its entirety and of the nature that enterprise engenders. It is as much of society as it is of science, and it is a factualized form of life.

### Curating Dinosaurs in Scientific/Public Networks

The noted shifts in the Mesozoic nexus signaled by the Maiasaur Project are clearly part of a complex set of the actions where many interests were brought to bear upon the exhibitionary outcome. Sharon MacDonald has commented on the complex movement of interests in museum practices as well:

*...the routes by which...interests make their way into communications intended for public consumption...are neither straightforward nor simple, and...groups and individuals with their own, possibly alternatively politicized visions may deflect and redefine some of those interests. Together with recognition of the roles that the many other human and non-human actors may play, we are left, then, with a more heterogeneous and complex picture of the processes involved in creating a science communication or museum exhibition. However, despite the contingencies, this is never a fully random or unpatterned complexity for some actors are imbued with greater authority than others.*<sup>17</sup>

MacDonald's point that "some actors are imbued with greater authority than others" deserves special attention. In the case of the ROM, curators do still maintain significant authority in

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<sup>17</sup> MacDonald 1996: 167. The Maiasaur Project provides an even stronger case about what takes place in museums, beyond the notion of an exhibit as simply a form of "communications intended for public consumption". The ROM's Maiasaur Project reached all the way to newly found fossils and palaeontological practices, and as well to a potentially dynamic, technically sophisticated, leading-edge exhibition. In this sense, it contributed symmetrically to the ongoing configuring of palaeontological as well as public cultures of dinosaur nature. It should be noted that Sharon MacDonald's project on an exhibit of food production and consumption in England ("Food for Thought") was not curated, in contrast to the case of the Maiasaur Project. Rather, a team of programming staff produced the exhibition, assembling material and scholarly content from a number of sources. It did not require the acquisition of scientifically outstanding objects, nor did it implicate scientific research as the Maiasaur Project had. As such, the writing of the exhibit as "communication" is understandable. There is, all the same, an argument to be made for the effect of any form of exhibition upon both scientific and wider social practices.

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the practices of museums, despite recent trends in major North American and European museums which have eroded that authority.<sup>18</sup>

The senior administrator for the Palaeobiology Division at the ROM, Beth Jameson, pointed out to me how the history of power relations between the curatorial and the display functions of the museum began to shift significantly in 1968, about the time she joined that section of the museum.<sup>19</sup> Until then, display had been largely a matter of placing objects in showcases with descriptive labels. In the 25 years that followed, concerns over public visitation and public communication had increased.<sup>20</sup> Various struggles saw the museum separate from the University of Toronto, come under the jurisdiction of several provincial government ministries, agree to the unionization of its labour force, go through a major architectural expansion, close to the public for an extended period, reopen with a royal visit. By the 1980s interpretation, education, and exhibit planning departments drew the majority of budget allocations, and curatorial departments the minority share—a complete reversal of the 1960s situation. In the course of this, the demand for more articulation between curatorial and public concerns had increased, in many ways lessening the divide between exhibits and curatorial functions, while granting increasing agency to the exhibit functions, drawing curatorial interests gradually in this direction as well. All the same, Jameson expressed to me her view that the ROM would always be guided by the curators, as they were in her words, “the only stable group in the institution”.

In one sense, Jameson was laying out a very resilient dichotomy in museum functioning: the relation between scientists+collections is repeatedly set against exhibitors+publics. These very sorts of divisions between functionally organized sections of the museum arose in the Maiasaur Project. Jameson struck a chord when adding:

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<sup>18</sup> See Janes 1995 for a range of reorganizational efforts affecting curatorial authority.

<sup>19</sup> Discussion is based on Interview with Beth Jameson, March 23, 1999.

<sup>20</sup> For a sketch review of the transitions from the late 1960s through to 1982, see Dickson 1986:130-176.



*...getting a dinosaur from the ground to the public, that all needs to be in one area....you can't have it divided... And yes, the Maiasaur Project was like that because it was a team... But they also had a curator who was new, who didn't have any baggage...who didn't know of previous problems...he wanted to make his mark... It would never have come off if it hadn't been for that...*

In spite of the “team” approach, the baggage she referred to is precisely that which ended up causing the divide in the Maiasaur Project between the multimedia and the curatorial-interpretive component. The struggle over whose accounts and which practices should take precedence in the exhibit were complicated by the divisive organizational structure, as Jameson pointed out:

*This is the problem with the administration...it's always been vertical... we had a curatorial DIVISION, a service DIVISION, an exhibit DIVISION....people at the top of each were building their empires...they're DIVISIONS, the very word means you don't talk to one another across the divisions... It's exactly the same today... But this may be where the new director will make it or break it...*

Writing of the Smithsonian Institution, Steve Allison-Bunnell witnessed a similar struggle: *The division between exhibition and research has served to dissolve the unique characteristic of natural history museums as places where scientific research and public representation interlock. ...there is indeed no particular reason why either science or exhibition must continue to coexist under the same roof, and the identity and mission of natural history museums will be decided by struggles between these two programmes, rather than the negotiation of a symbiosis.*<sup>21</sup>

The case of the Maiasaur Project suggests that Allison-Bunnell's position is overstated, or at the least that it may be more a specific symptom of the Smithsonian. To a limited extent at least, the Maiasaur Project signals a constrained effort to work as a team toward more collective exhibitionary/scientific outcomes of what counts as nature. However, and this is the critical turn, consumer-oriented marketing interests are now significantly pushing (or

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<sup>21</sup> Allison-Bunnell 1998:94-95.





pulling) the collective, and indeed, the project illustrates how those interests have become part of the collective itself, as well as the exhibitionary outcome.<sup>22</sup>

The promotion of interactive multimedia and digital animation in the Maiasaur Project is a case in point. These displays had two principal effects: they intensified the performative, fetishistic reality of *Maiasaura*, and they moved the exhibit to a level of spectacle which could be marketed competitively in the leisure entertainment sector. As such it brought the exhibit into closer alignment with theme park attractions and Hollywood films like *Jurassic Park*, *The Lost World*, and *The Land Before Time*, and indeed with their technical histories. This then amplified the potential in the exhibit presentation for visitors to blend phantasies borrowed from these other high-tech animation experiences. The experience of the exhibit often became all the more akin to the experience of these other consumer entertainment spectacles.

In the Maiasaur Project then, ‘nature’ became all the more regular and regulated as a consequence of the adoption of a predominant marketing and consumerist model of curated exhibitionary practice. The articulations in “getting a dinosaur from the ground to the public” were less and less about making connections between the specimen and the exhibitionary accounts and mediations. More and more, the articulations were rerouted to associations with high-tech media experience, with the domestic family life scenario traceable back to Horner in the 1970s, with the “good mother” gloss of the word *Maiasaura*, with babies and the intimacies of touchability, with interactive exchange in encountering the most theatrical elements of the exhibit. This was how the Maiasaur Project came to compete for the interests of audiences as consumers in the leisure entertainment world. The now-natural dinosaur family was a key to it all.

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<sup>22</sup> The argument supporting a collective approach is that a more plural process of knowledge production is taking place, and that the natural worlds emerging in exhibitionary form will take in far greater arrays of interests depending on how much the various actors in the collective are given agency to act. The contrast here with the Osborn practices of exclusionary world-building is heartening. With Osborn, exhibitionary and scientific outcomes arose through a top-down authoritarian practice of amplifying certain agendas.



Marilyn Strathern noted how the shifting conceptualization of “family” in North American and English cultural practices, has become closely bound up with images of a very regular domestic lifestyle. In turn, domesticity as a “lifestyle choice” has come to be more or less desirable and consumable. Through heterogeneous collective actions the Maiasaur Project turned this dinosaur toward the family account. As Henson had mused, it was not to rebuild a “father knows best” scenario. Rather, it turned in this direction to create Jennifer Ross’s effect— “relevance” for its “projected” “family” audience, who would have to choose whether to pay the admission price to come to the museum over other ‘family-oriented’ consumer leisure entertainment options in the Toronto area: Canada’s Wonderland, shopping, the Hockey Hall of Fame, a sporting event, an IMAX film presentation, other museums, etc., etc. Indeed, as mentioned, IMAX also now offers its own consumable, family-oriented Mesozoic ride film, *T. rex—Back to the Cretaceous*. The Maiasaur Project also took visitors back to the Cretaceous, it also had a big screen, and it offered to immerse the visitor in the total dinosaur image and world. However, it also offered a safe retreat into the nostalgic, cozy, domesticity of friendly mothers and babies, reproduction, neighbours and relatives, and presented it in a locale that promised it all was natural and true. Is that what was meant in ROM’s slogan, “your kids shouldn’t have to learn about rex on the streets”? At the same time, it was all still set against the lurking presence of marauding meat-eaters—or in Phil Thomm’s words, the “ferociousness of capitalism”. Is that what the ROM meant in claiming to offer “more than just a rex object”?

The audience-market, consumerist move had directly affected curator Henson as well from the very outset. To ensure the working lab could be developed for the display, Henson knew “that only by putting in an over-abundance of interactive technology which somehow made it hip and modern... was I able to sell that very simple idea...”. He did so because he understood that “Museums have become a leisure time activity. So it’s very important to compete with other leisure time activities and to provide entertainment.” These moves would



haunt the exhibit and its project team throughout the development. Henson had also noted that the move to the “family” story was not *his* choice, but rather something “that just happened” —in spite of the fact that it was he who had enrolled Horner’s family-structure account in promoting the acquisition of the Maiasaur specimen. Both the domestic family lifestyle account and the high-tech multimedia were oriented to audience and market for their effects as consumer fetishes. The curator’s intent was gradually swept up by the tides of the market.

What took place in the lab became, ultimately, not that which informed the surrounding exhibits, but rather the display of legitimating palaeontological preparation techniques. Its articulation with the rest of the exhibit resided mostly in its being interactive and visual. As I learned from those who worked on the displays—and the preparators who worked *in* the display—the lab did captivate visitors. The “science” of the specimen itself, on the other hand, was poorly articulated with the majority of media elements in the display. Visitors were pushed all the more to absorb the “science” of the rest of the display: the virtualized Maiasaur and the familial life and times of the good mother. When the lab was eventually removed, what principally remained was the virtual Maiasaur, and the good mother account.

In the final analysis the fragmented “dynamic process” which Henson had sought through the working lab had to “piggy-back” on the marketing, consumer-oriented practices. The form of life and the nature on display were selected and then phantastically animated into material exhibitionary forms, which were heavily marked by the interests of the consumer marketplace. The active or potential science, and indeed the specimen itself, were relatively mute.

Perhaps attention to the uniquely preserved beak of the specimen, or the unusual skin impression of the dewlap, or other unexpected features of the specimen such as its ‘communal’ nesting sites could have produced greater possibilities for making the process more dynamic and surprisingly meaningful for visitors. Perhaps an altogether different





dinosaur—something quite unlike *Maiasaura* or *Tyrannosaurus*—could have been acquired or displayed, a dinosaur with much less regular sorts of imagined behaviours and lifestyles. Perhaps displaying more transparently that scientific practice and techniques, in the proper sense, are always already full of contingencies, uncertainties, debates, and phantasies would have produced as much interest and new ways for visitors to think about science's 'truths'. Perhaps this would lead visitors to think *literally* in more sophisticated ways about dinosaurs, relatedness, difference, other forms of life and living—something considerably more dynamic than king tyrants and good mothers.<sup>23</sup> I lay these suggested, untried alternatives against what actually took place in the Maiasaur Project to highlight several key points about how the nexus of Mesozoic performativity may be shifted in the work which takes place in institutions like museums which play such an important role in the culturing of nature and forms of life.

### The Collective Promise in “Trying to Be a Scientist”

While curatorial action in service of public cultural interests has been significantly displaced in the direction of consumerist management—with museums marketing their “brands” and where people coming to museums are conceived as “audience-markets”, curators remain central in the museological enterprise. Of any person in the exhibit development process, Curator Henson exercised the greatest influence over the materializations in the Maiasaur Project. His respected guidance and input was felt across

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<sup>23</sup> More dynamic forms of life and relations are generated in sociotechnical actions outside museums. For instance, Donna Haraway long ago pointed out that the “discourses of biotechnologies and reproductive technologies, do not use “the syntax of maternalism and domesticity” (1989:352). Likewise in her consideration of the upsetting of orders of relatedness through biotechnologies of cloning, seen in relation to the cloned sheep Dolly, Sarah Franklin remarked: “Dolly instantiates a new kind or type of breedwealth, and as such, her production, her existence, and her ownership all refigure what kinship means and does. In turn, I would argue Dolly is kin to all of us by precisely the measure she is also unnatural to many. Recognizing shifts in understandings of generative agency her birth both confirms and announces, I would say she instantiates and embodies the constitutive importance of relations in an overdetermined fashion — and one that is as yet poorly understood.” She rightly added to these points, “Neither science studies nor actor-network theory have adequately theorized the importance of relations.” Also see Franklin 1997b.



the network of interactions: with the collections, with the purchase of the specimen, the display media, the storyline, in budgeting, in the specimen preparations process, in model making, scene making, dinosaur animations. He acted as a constant authority to planners, designers, managers, technicians, board members, sponsors, news reporters, script writers, marketing staff, web page designers, etc. He was seen and heard in a video in the galleries describing the field locality where the specimen was found. In research museums like the ROM, scientists and curators are arguably still the most “stable group in the institution” as Beth Jameson suggested, positioned at so many of the points of juncture (or rupture) between the technical and public practices of museums.

As a work and technical collective, the curatorial staff are also those who are “imbued with greater authority than others”, along with their closest allies, the collections of specimens and artifacts which they are charged with curating and studying. At the same instant that they are highly influential, their activities are also vulnerable, hijacked at times by ‘higher’ level institutional moves. As SVP President Lou Jacobs noted with the sale of Sue in the US, dinosaur palaeontologists have been put in the position of guarding against, “the threat to our science if we fail to provide guidance to the forces released by this interest.” In short, the consequences of marketing pressures in actually reconfiguring what a “curator” is and does in a large public museum are far-reaching and profound, as are the consequences for reconfiguring what forms of life are produced in the research and display spaces of such institutions. Watching how “markets” may or may not condition that articulation work and the performative worlds and beings which precipitate will be the next challenge, and astute curators like Andreas Henson are powerfully positioned to influence this process. It takes an enormous understanding not just of fossils, objects and the histories that make these relevant, but of society and what aligns it to this relevance.

On several occasions, Andreas Henson and I discussed the tremendous media profile which some North American dinosaur palaeontologists had gained in the last decade and



longer.<sup>24</sup> In one interview, during which we discussed the stresses which massive public awareness of dinosaurs produce in the work life of dinosaur palaeontologists, Henson lamented, “I’m just trying to be a scientist!”. His entreaty spoke of the increasing demands upon working as a palaeontologist, especially in a museum, where directly serving public concerns are mandated aspects of the job, and where the amount of work in managing those concerns becomes enormously overwhelming. I take from his lamentation and his efforts in the Maiasaur Project some optimistic signs—given Henson’s recognition that being a scientist entails far more than just technical practices, but indeed public accountability.

Notwithstanding the lost opportunities to more fully articulate scientific practices with public culture, and so to make science more transparent and accountable, the very regular consumer-oriented outcomes of the Maiasaur Project suggest to me three provisional points which mark a modest political promise for curatorially based museums. These are quite pragmatic points, stated as a series of questions and comments, rather than as answers. They stand as points of departure for future actions in museums, science, and indeed in anthropological and cultural studies of science and nature:

(1) Selectivity. What is the power in selectivity? In choosing a particular specimen for the display of the dynamics of science and its techniques, a curator is also selecting and launching the right “factish” for the job of providing more complexity in the interpretation of nature—and with that, of society. That very selection can open or foreclose all the more valences for public in-filling and counter-imagining of that which comes to be presented in exhibitions. Selectivity in historical flux shows that *Maiasaura* was refashioned by society no less and no more than the reverse. In their choice of what should be studied, collected, or

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<sup>24</sup> Andreas Henson has not been profiled to the extent of some dinosaur palaeontologists. Those dinosaur researchers most repeatedly profiled in the media or asked to consult on large scale film, commercial, and popular projects are Phillip Currie of the Royal Tyrrell Museum of Palaeontology, Robert Bakker of the Denver Museum of Natural History, Jack Horner of the Museum of the Rockies, and Paul Sereno of the University of Chicago.





displayed, it is clear that curators do—or at least can—have special agency in the refashioning of nature/society.

(2) Collectivity. What is the power of the collective? To overstate the responsibility and privilege of the curator alone risks ignoring the collective which brought this dinosaur into physical exhibitionary being. The curator was part of a collective of specimens, museum workers and exhibit fashioners, of collections, buildings, procedures, instruments, the fossil market, and many other resources—all of whom *and* all of which act together to reconstruct and animate dinosaurian life as science and culture. That theatre-producing collectivity is what ultimately reanimated *Maiasaura* and its Mesozoic life and times. Could not turning the privilege of the curator-scientist to support the collectivity and the specimen itself, rather than support market impulses for instance, help to restore otherwise diminishing authority of scientists as they are beset by, and seen to be instruments of, institutional powers beyond?

(3) Collective Phantasies. What is the power of phantasizing, of imagining? Scientific, exhibit design, communications practices—as much as visitor engagements with museum exhibits—necessarily entail imagining.<sup>25</sup> Throughout the collective action in the making of a curated exhibition, phantasies were continually brought into play. Everyone (e.g. museum staff, visitors, consultants, sponsors), and everything (fossils, interactive consoles, animations, videos, diagrams, the pewter *Maiasaur* model) impinged upon shared and particular senses of this dinosaur and its world moment. Those phantasies were literally performed as the real in the display—phantasies like “*Maiasaur* family life”, “complex biology”, “friendly dinosaurs”, a “living breathing environment”, “morphing dinosaurs”, a

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<sup>25</sup> In relation to actor networks, I reiterate that fantasy should not be thought of as divorced from the actions of humans and non-humans. Rather, it takes place through the active engaging of human with non-human entities. Phantasies move between and come to reside in humans and non-humans through collective actions. Humans, therefore, are privileged to some extent, because they are able to take up or act upon phantasies very rapidly. Specific consideration of how phantasies move between people and things might fruitfully be taken up through ethnomethodological studies. See Latour’s discussion 1996 “On Interobjectivity” (“The Lessons of Simian Societies”), to which I am suggesting the simple move of readmitting fantasy to the exchanges, helping along his point that there need not be “a yawning gulf separating the agent from structure, the individual from society”.



“pettable Maiasaur”, a “pewter” Maiasaur, “co-evolution”, technical science performed like theatre. None of these would have worked without a faith that visitors could comprehend and participate in these phantasies when encountered in the materialized form of an exhibition.<sup>26</sup>

The way in which the Maiasaur Project combined the shared and particular phantasies—i.e. the *selective, collective, phantasy* of the Maiasaur Project—ultimately reproduced in this dinosaur a domestic, family lifestyle—the lifestyle which the makers of this exhibition felt would align with the visiting, consumer audiences to this exhibit. The matter of phantasy has direct relation to matters of individual desire. Marilyn Strathern has potently remarked:

*The individual consumes cultural and natural products alike, but in consuming them him or herself reproduces only him or herself. So consuming the world is turning it to already anticipated ends: the pleasures of the closed circuit (Haraway 1985:88-9), the body as the place of private satisfaction that completes its own desires. ...Perhaps a new ground for individual action will be this very capacity to combine desire with the appropriate enabling technology.*<sup>27</sup>

In selecting specimens, in promoting enabling technologies, in amplifying certain desires and phantasies over others, curators—and others in the collective—have significant potential in refashioning natural/cultural outcomes. They can yet be potent agents within the collectivities by more fully considering how always-present phantasms may come into play.

That said, such a regular, regulated cultured form of nature as that which emerged in the Maiasaur Project may be symptomatic of its site of production: a large, publicly funded museum. With that note, I turn my final comments to the doubly problematic and promising place of dinosaurian natures in the civil work of museums.

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<sup>26</sup> Thinking of how these phantasies enter and exit the collectivity (of humans and non-humans) recalls again discussion in chapter 5 (“Recirculating Scenarios”) of the points of Deleuze and Guattari, and of Emily Martin, in their theorizing of “rhizomatic” movements in and through the world, society, personal life, objects, productions, actions, organizations, etc.

<sup>27</sup> Strathern 1992:177.



### 3-Civil Nature, Civil Saurians, Civil Locations

*...the museum...deploys its machinery of representation within an apparatus whose orientation is primarily governmental. As such, it is concerned not only to impress the visitor with a message of power but also to induct her or him into new forms of programming the self aimed at producing new types of conduct and self-shaping.*<sup>28</sup>  
—Tony Bennett 1995

*So, from primitive brute, you get to this sort of, civilized, developed organism...*  
—Andreas Henson, 1998, speaking figuratively of the figurative transformation of *Maiasaura*

*Museums demand attention to questions of how identity and difference are performed, and to how senses of continuity might be intimated in the face of the apparent acceleration of transnational movement and global transformation. They are sites in which seductive totalizing mythologies of nation-state and Enlightenment rationality struggle against alternative classification, and in which 'high culture' and 'popular culture' battle for legitimacy.*<sup>29</sup>  
—Sharon MacDonald 1996

In a volume entitled *Museums and the Paradox of Change*,<sup>30</sup> Dr. Robert Janes, an archaeologist and Director of the Glenbow Museum in Calgary, Alberta, attempted to come to terms with the place of public museums in times of diminishing—even vanishing—government funds for their operation as cultural institutions in Canada. The Glenbow, once recipient of a large Provincial grant to support its operations, had in the last decade become what Janes calls an “autonomous museum”, relying on private contributions and sponsorships, admission revenues, and entrepreneurial projects for the lion’s share of its budgetary needs. Janes’ somewhat uneasy commentary about the shifts in museums toward increasing levels of collaborations with corporations, or in joint ventures on anything

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<sup>28</sup> Bennett 1995:46

<sup>29</sup> MacDonald and Fyfe 1996:14

<sup>30</sup> Janes 1995.





from fast food restaurants to international consulting, speaks of these relationships as “unholy alliances”.

In an effort to carve out a role for museums as they end up less and less linked to government through grant funding, Janes situated them in relation to his working definition of “civil society”:

*[Civil Society] is the space between the individual and the state, and is the realm of autonomous institutions that are not run by governments, but that act as agents of the will of the people....Predictably, in a country where the vast majority of professional museums are owned and operated by government, the role of museums in civil society remains unexplored.*<sup>31</sup>

The work that goes on in the space which Janes discusses is similar, I would argue, for government-funded agencies like the ROM, which have also come to ally themselves with corporate supporters and partners, and which also vie with autonomous museums, and other leisure attractions for public attention.<sup>32</sup> As Bennett notes, that work still takes aim at the visitor in order to “induct her or him into new forms of programming the self aimed at producing new types of conduct and self-shaping”. Museums of all sorts may be aligned in relation to this project, and all can advance or upset the ongoing drift toward market orientations. In any case, what happens in the space of which Janes speaks is extremely important, and begs so many additional questions: when one speaks of the “will of the people”, just who are the people which any such institutions are acting for? What is the complex set of everyday agencies which are mobilized in museum sites and which serve to reconfigure what Janes refers to as the individual and the state? And, for cultural institutions

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<sup>31</sup> Janes 1995:232.

<sup>32</sup> A similar point about the participation of governmentally affiliated museums as sites of participation in civil society is made by anthropologist Ivan Karp (Karp (ed.) 1992:4). Following Gramsci, Karp approximately distinguishes “political society” from “civil society” as that which has a strict regulatory, policy enforcement (eg. “policing”), or statutory function versus that which has a hegemonic function through the complex everyday action of public culture. Also see Bobbio 1971.



in particular, what is it that precipitates uniquely, diversely, or repetitively in that heterogeneous space in between?

Largely absent in Janes' discussion of museums as "public culture institutions", is that which emerges at the intersection of the public and the institution and is signaled by the word "culture"—the very stuff meant to come into being in the complex craft network known as the public museum. The exhibitionary and collections matter which comes to stand as material nature or material culture are also necessarily caught in the historical flux, and at the same time has a direct role to play in altering that flux. Museums may be but one culture-producing locus in this regard, but they remain a key site of knowledge and cultural production. It very much matters *who* and *what* the many agents of change are which are being mobilized in the process of production.

In a later comment, Janes actually does point out that the work of museums "...is really a hypothesis, and every day we frame our questions and assumptions in accordance with what we know at the time".<sup>33</sup> He could not be more correct. Uncannily, Sharon MacDonald has offered a comment which presents, reciprocally, the very outcome of the museum work which Robert Janes suggests:

*Any museum, or exhibition is, in effect, a statement of position. It is a theory: a suggested way of seeing the world. And, like any theory, it contains certain assumptions, speaks to some matters and ignores others, and is intimately bound up with — and capable of affecting — broader social and cultural relations.*<sup>34</sup>

The worldly conditions of knowing at this time have handed museums a new, complex set of worries and possibilities—a hypothesis in Janes' terms—and many of these were signaled in this particular 'zone of implosion' at the ROM: the Maiasaur Project.

In one sense, the Maiasaur Project affirms what Tom Mitchell suggested in the most general terms concerning "what is to be done" with 'the dinosaur' today:

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<sup>33</sup> Janes 1995:258.

<sup>34</sup> MacDonald 1996:14.



*...“keep an eye on it”... pay attention to what is happening to it, try to make sense of it. The creature has an uncanny capacity for working both symptomatically and diagnostically. It expresses the political unconscious of each era of modern life, manifesting collective anxieties about disaster and extinction, epitomizing our own ambivalence toward our collective condition.*<sup>35</sup>

Though Mitchell gestures partially in this direction, the Maiasaur Project also points out that the dinosaur operates as more than an icon or, following his lead, more than a singular sign of modernity. For it, or rather *they*, actually have an agency resulting from the earth-borne fossils. That agency has kept palaeontologists in the cultural action of sorting out histories of life for some time. Those actions, in turn, have come to provide possibilities to a great many more people—the public—in sorting out notions of what makes them human in opposition or relation to dinosaurs. Taking a step beyond Mitchell, dinosaurs are, quite literally and materially, natural/cultural agents.

Phil Thomm’s comment is signal here, and bears repeating:

*If you were to go up to a child and ask them what kind of dinosaur they wanted to see, it would be a T. rex, right... There’s no doubt... And if you were a business... you just look at Sue... If you’re a MacDonald’s or a Walt Disney and you’re big, you want to strike a lot of people, what else would you go for but a Tyrannosaur... And maybe that relates to capitalism somehow... the ferociousness of it ...*

If Thomm is correct, then Maiasaur would have to be seen as something which interrupted the process—as this dinosaur moved away from the ferocity of capitalism, which in his trope also has the capacity to gobble up children. But on closer analysis, it happens that Maiasaur may simply be the passive, ‘kindlier’ face of capital. The neo-liberal struggle may well be set out in terms of good mothers protecting nests from tyrant kings.

But one has to wonder, then, how effective museums can be as sites of significant natural/cultural intervention, if they need to activate such prescriptive gender and lifestyle economies to ensure the survival of public involvement and survival of the scientific

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<sup>35</sup> Mitchell 1998:261-2.





practices which museums entail. Once again, Phil Thomm had spoken of the salient effect of the Maiasaur Project:

*...in the time of cutbacks...and growing unsureness about learning institutions and the museum, and where it was going, curatorially anyway...It's about accountability...trying to let people know that there's nine floors joined to the gallery space that maybe they don't know about... I guess that was part of what they're to get from the specimen ...*

Is this possibility of accountability viable, however? Downsizing and government cutbacks have increased the pressure on museum administrations to bring the public in and increase private sponsorship. Indeed, the latest director of the ROM, Sidney Lawson, has emphasized the marketing potentiality of the museum, and has been credited by some nervous staff with comments like “everything at the ROM is potentially for sale”. A set of forceful connections have been created whereby “consumer choice” is increasingly driving public programming in museums, shaping display content and media, enhancing the employing and hiring of articulate, audience- and market-savvy curators, including vertebrate palaeontologists, who in turn are being elevated to senior management positions.<sup>36</sup> This selection process also shifts the emphases in dinosaurian vertebrate palaeontology, which has overwhelmingly been associated with museums and the museum enterprise. The worlds of nature and forms of life produced will be those which answer the shifting networks of scientific-exhibitionary action. When those in museums begin to murmur anxiously about the process of Disneyfication, they are expressing the extent to which certain sorts of vascular connections with the marketplace have gradually reconfigured the entire apparatus.

Where Tom Mitchell concentrated on the distributed and, notably, visual fetishism of dinosaurs—leading him to call dinosaurs the “totem animal of modernity”—Robert Janes has fixed on the civil functioning of museums as a space for the people. In relation to this, the Maiasaur Project aids in showing how these two actions are complexly yoked together. It

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<sup>36</sup> Andreas Henson is one such curator. As I completed my research visit at the ROM in 1999, he was promoted to the position of Vice President, Research and Collections.



shows to some extent, both how a fetish is constituted and reconstituted in exhibitionary space where scientific and public cultural currents mix and simultaneously reshape each other, and as well, how what takes place in that space is part of a larger, worldly complex of circulations acting upon the fashioning work taking place in that locale.

Janes, full of uncertain hope, goes on to suggest:

*Museums, especially if they are autonomous agents, are an important counterbalance to the aspirations of free-marketeers. As such they have an enduring role to play in the civil society, by demonstrating the need for balancing the forces of the marketplace with the perspective that no one group or ideology possesses the sole truth about how society should develop.*<sup>37</sup>

I seriously wonder whether large-scale museums like the ROM or the Glenbow — autonomous or otherwise — can be the locale for this sought-after counterbalance. The natures and forms of life they reproduce suggests otherwise. Rather, even governmentally-operated public museums appear increasingly to be captured by the enterprise environment in which they are further becoming enmeshed.

Squarely in the middle of all this is that fulcrum point of civility, the dinosaur exhibition, and right there with it is the dinosaur curator. The simplest point is that dinosaur exhibits, while always attached to certain scientific narratives and actions, are also the top public draws to museums (and to theme parks and Hollywood films nowadays). And that draw also covers one of the widest spans of the social world of any display topic in museums, galleries, or science centres everywhere. It is, in many ways, the most middling of exhibitionary matter as well as the most far-reaching, the one which most depends on the point of middle class civility, and which most reflects it as well. Institutions predicated on sustaining civility will continue to be attracted to dinosaurs for this effect to reach many and to enlist them as allies to a common civil cause. In short, dinosaurs have become highly normative beings of nature/society.

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<sup>37</sup> Janes 1995:255.



I have looked to the Cretaceous or the Mesozoic with an interest in how the performative nature they entail are effected by and, as well, effect historical flux. Those fluxes are felt, quite resoundingly, in the larger network of actions which place major Canadian museums increasingly in competition or opposition to the entertainment industry. In turn, the matter within the performative geography of the Mesozoic (i.e. the nexus) is both altered by those longer, more dense sets of articulations, and simultaneously come to reinforce them. As Donna Haraway put it,

*Technoscience provokes an interest in zones of implosion, more than in boundaries, crossed or not. The most interesting question is, what forms of life survive and flourish in those dense, imploded zones?*<sup>38</sup>

Dinosaurs may typically be held in check by the Mesozoic enframing—the zone of implosion. They are usually made normal by this. But that framing also brings in the possibility of authorized locations (museums) or entertainment locations (theme parks, feature film) to alter or sustain what counts as normal in the form of the natural. That is where the trade begins. As these venues trade the entire specimen-spectacle complex shifts—sometimes museums redirect the entertainment sector, sometimes the entertainment sector redirects museums. Capitalization, as is witnessed in the case of Sue, is making a difference. Now, theme parks and museums collaborate in the refashioning of nature: a form of corporate merger deals in the world of edutainment. The mirrored worlds are: media, leisure hungry contemporary consumer life and Mesozoic life. Museums and Hollywood are at the generative junction here. What museums enact at this junction may yet have possibilities for shifting even how Hollywood responds.<sup>39</sup> Articulate, transparent, accountable museum practices may be the key force in this regard, and the way to ensure they offer “more than just a rex object.”

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<sup>38</sup> Haraway 1994.

<sup>39</sup> Economic analyses may be applicable here. For instance, Michel Callon’s discussion (1997) of “enframing and overflowing” offers a powerful point of departure for thinking about how the work of museums might overflow in such a manner as to affect the actions of corporate entities like giant Hollywood movie studios.





Continuing on this optimistic note, in undertaking this research, I have been struck intensely by the simultaneous sophistication, hope and anxiety of scientists and museum workers as they attempt to study, promote, animate, imagine, educate and entertain with dinosaurs—beings which have proven over and over again that they can be revised to reflect and effect social and natural change, both human and non-human. This same productive hope and anxiety—a collective critical edge—emerged in almost every quarter of the exhibit development process. It echoes the very same sorts of troubled but hopeful searching expressed by museum directors like Robert Janes. To really begin to address the potentiality of this shift from recognition to action, it now becomes imperative for museum workers, professionals, exhibit developers, managers, scientists, and visitors as well, to understand the complex flux that effects their actions—including the sorts of objects, instruments, and finished displays which they work with and help cause into being. It will take more than a faith in counter-balancing the free-marketeers, if as it appears, the market logics are to be found throughout the network, down to that which is produced at its focal nexus—forms of life. Actions will have to be inserted throughout the complex to effect shifts in other directions.

One sign that this has taken place will not be a more pure or true or scientifically accurate dinosaur exhibition, but rather the production of a different sort of fetishized figure—a more articulate factish than ever—one which goes considerable steps beyond good mothers as counterparts to king tyrants, incorporating broader, altered, more inclusive collectivities into its effective constitution. A second sign will be that the “dynamic process” which is selectively, partially unveiled will attempt to “give a sense” not just of the labour and tools of extracting fossils from encasing matrices, or of describing the locales in which fossils are found, but an even more heterogeneous complex of human and non-human agencies, instruments, and imaginings which bear upon the outcome. The very fracturing of the total



is the promise of its more adequate articulation.<sup>40</sup> Everyone in the making of this exhibition cried out for this articulation, the interactive media demanded it, the visitors sought it, and the Maiasaur skeleton was neglected without it.

It may be that with one hand—in extending market-oriented logics of dinosaurian-public exchange—the Maiasaur Project has taken something away. With the other hand however—in suggesting the possibility of the more complex “dynamic process” of articulating specimen and spectacle, of everyday objects with everyday folks—there may be glimmers of what museums can yet give back.

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<sup>40</sup> cf. Latour 1997.



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